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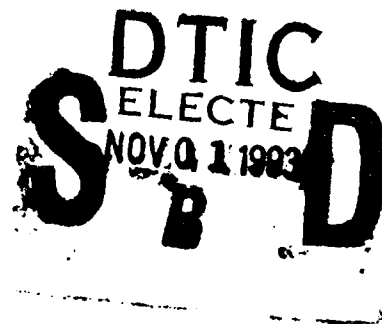
Miscellaneous Paper R-93-1  
September 1993

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*Natural Resources Research Program*

## **Summary of the 1991 Campground Receipt Study**

*by Teré A. DeMoss, Tracy C. Trichell  
Environmental Laboratory*



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**Natural Resources  
Research Program**

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by **Teré A. DeMoss, Tracy C. Trichell**  
**Environmental Laboratory**

**U.S. Army Corps of Engineers  
Waterways Experiment Station  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199**

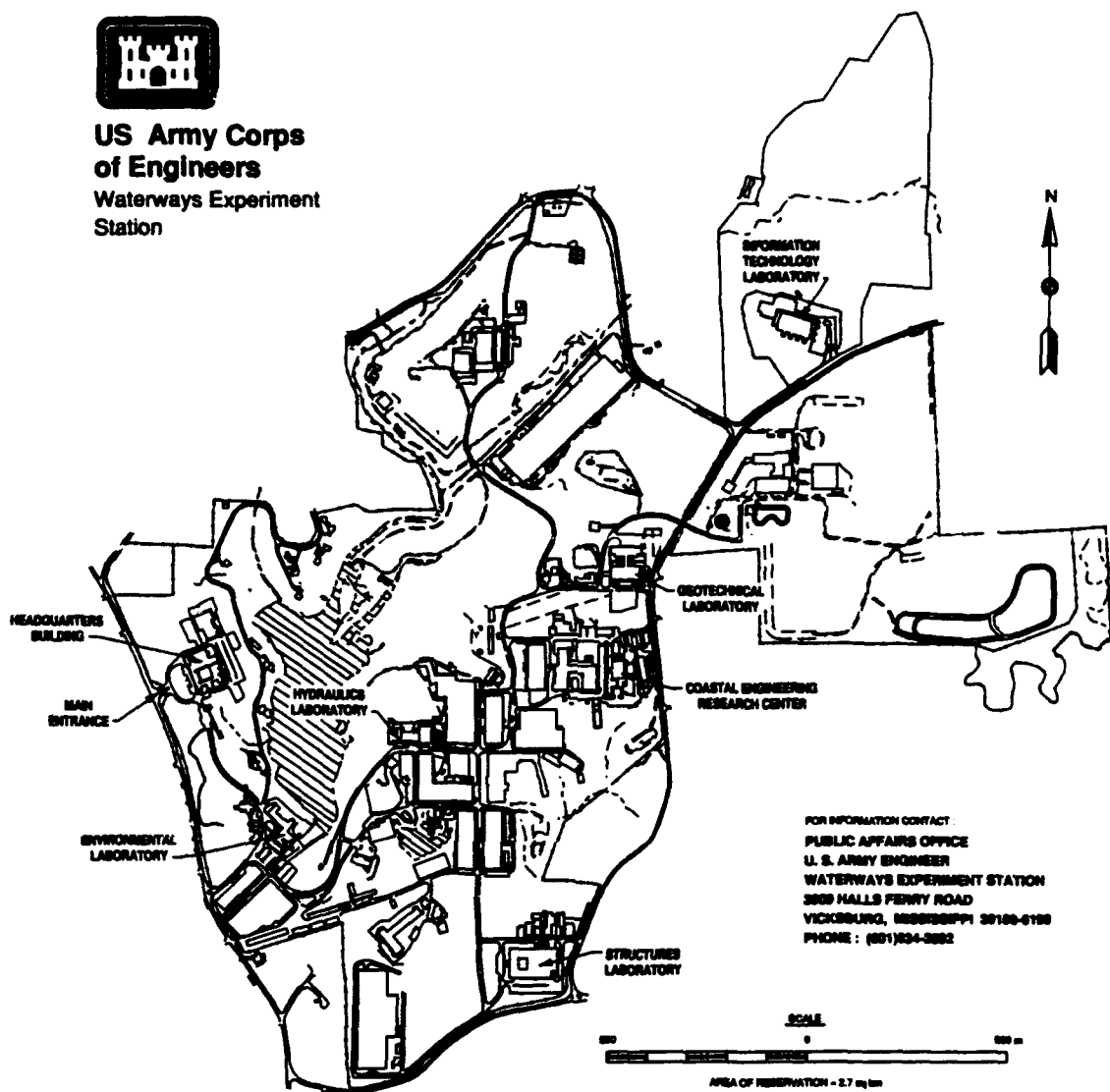
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# Preface

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The work reported herein was conducted as part of the Natural Resources Research Program (NRRP). The NRRP is sponsored by the Headquarters, U.S. Army Corps of Engineers (HQUSACE), and is assigned to the U.S. Army Engineer Waterways Experiment Station (WES) under the purview of the Environmental Laboratory (EL). Funding was provided under Department of the Army Appropriation No. 96X3121, General Investigation. The NRRP is managed under the Environmental Resources Research and Assistance Programs (ERRAP), Mr. J. L. Decell, Manager. Ms. Carolyn B. Schneider was Assistant Manager, ERRAP, for the NRRP. Technical Monitor during this study was Ms. Judy Rice, HQUSACE.

This report was prepared by Ms. Tere DeMoss and Ms. Tracy C. Trichell, Resource Analysis Branch (RAB), EL. Ms. Jennifer Rabert, RAB, contributed technical expertise to this report. Review and comments were provided by Mr. Jim Henderson and Mr. Samuel Franco, RAB.

The report was prepared under the direct supervision of Mr. H. Roger Hamilton, Chief, RAB, and under the general supervision of Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL, and Dr. John Harrison, Director, EL.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Bruce K. Howard, EN.

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- Curtis, G. L. (1983). "Summary of the 1982 campground receipt study," Miscellaneous Paper R-83-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Akers-Fritschen, J. (1985). "Summary of the 1983 campground receipt study," Miscellaneous Paper R-85-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Lawrence, L. R., and Akers-Fritschen, J. (1986). "Summary of the 1984 campground receipt study," Miscellaneous Paper R-86-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Lawrence, L. R. (1987). "Summary of the 1985 campground receipt study," Technical Report R-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- DeMoss, T. A., and Titre, J. P., Jr. (1991). "Summary of the 1986-87 campground receipt study," Miscellaneous Paper R-91-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- DeMoss, T. A. (1991). "Summary of the 1988 campground receipt study," Miscellaneous Paper R-91-3, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- DeMoss, T. A. (1992). "Summary of the 1989 campground receipt study," Technical Report R-92-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- DeMoss, T. A., and Trichell, T. C. (1992). "Summary of the 1990 campground receipt study," Technical Report R-92-3, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.



# 1 Introduction

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## Purpose

This is the tenth in a series of reports that summarize the results of the Campground Receipt Study (CRS). The CRS has undergone continual improvement in procedures and in the application of data analysis. Changes in procedures are generally found in the earlier reports (1980-82), while improvements in special data applications tend to be found in the later reports (1982-91). The main purpose of each report, however, is to describe the CRS data so that a database can be established to analyze trends in camping use each year. This summary uses the 1991 data and examines the analysis from 1985 through 1991.

## Background

In 1978, the Recreation Research and Demonstration System (RRDS) was established under the Natural Resources Research Program of the U.S. Army Corps of Engineers. The RRDS units serve as permanently designated outdoor laboratories at which information on recreation and resource aspects of lake management can be systematically gathered. In constructing a representative sample of sites, Title V economic development and physiographic regions<sup>1</sup> were combined to produce 30 physioeconomic regions. Twenty-four units were selected from these regions, representing approximately 5 percent of the then 465 Corps projects. From these 24 units, the 16 projects that had fee camping programs agreed to participate in the CRS (Figure 1). These 24 projects/units were chosen to represent a wide variety of multipurpose reservoirs, locks and dams, and dry lakes. A U.S. Army Engineer Waterways Experiment Station (WES) publication (Hart 1981) contains a detailed explanation of the RRDS units and their selection. Specific criteria for selection are provided below.

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<sup>1</sup> Title V, Public Works and Economic Development Act of 1964.

- a. Full range of activities.
- b. Spectrum of resource characteristics.
- c. Nationwide distribution of units.
- d. Range of conditions at multipurpose projects.
- e. Planning, design, and management tasks.

One of the main uses of the RRDS has been the CRS. Through the CRS, a database has been developed on one of the Corps' most popular activities: camping. Four factors guided the development of the CRS (Curtis and Hansen 1982):

- a. The procedures and instruments developed were to place a minimum burden on project personnel.
- b. The procedures were to have a minimum impact on the recreation visitor when registering at the campground.
- c. The monitoring procedures were intended to be cost-effective and efficient.
- d. The data collected were designed to be valid and reliable.

Two important distinctions concerning the CRS database should be noted. First, the information gathered, as a subset of the CRS, includes only fee campers; therefore, these campers do not describe the "Corps visitor" per se. Second, the analyses are done to illustrate potential uses rather than to provide a definitive portrayal of all possible applications. Users are encouraged to further utilize the database as the management tool for which it was intended.

## Study Procedures

Data collection for this study was done by rangers and campground gate attendants as campers registered. Most of the data were collected through observation, so impact on the visitor was minimal. Data were recorded on Engineer Form 4457-1. A thorough discussion of the development of this form was provided in the 1983 Campground Receipt Study report by Akers-Fritschen (1985). Since 1988, several research and development units have recorded the data directly on to a computer through the use of the Automated Use Permit System (AUPS), which was developed at WES to register campers and collect CRS data.

After the CRS data were collected and sent to the corresponding Corps District offices for keypunching, they were forwarded to WES for analysis.

For the analysis, a FORTRAN program, the Recreation Analysis Program (RAP), was developed. This program generates two reports. The Area Report provided a summary of the CRS data for each recreation area, while the Site-Specific Data Report provided most of the same information for each campsite. District offices that participated in the CRS were provided with a copy of the RAP for their own analysis purposes.

For the 1986-91 analysis, data from the RAP output were transferred into the Statistical Analysis System (SAS). SAS is an advanced data manager and statistical software package. The creation of SAS data sets for the CRS provides greater options for examining the data with specific research questions.

## **Multiyear Procedural Development**

The procedures for data gathered at the research and demonstration units have undergone three distinct phases of development. Initially, the study focused attention on the campground receipt in terms of defining how and what types of data were to be collected. Forms went through improvements and were finalized during the early part of the study. Comparison of key variables across projects has provided an assessment of campground market behavior in the Corps.

A second stage of development has been the documentation of general results over time, such as reporting on the changes in types of camping equipment. Important trends are highlighted in the report series (e.g., an increase in camping parties with tents and camping parties with powerboats during the years 1981 through 1984) (Lawrence and Fritschen 1986).

The third stage of CRS development has included the use of data for analyses beyond routine summaries. The present report is an extension of previous efforts, as it reports on key trends while illustrating management applications. These are aimed at improving the efficiency of project operations, which will provide for a general understanding of the Corps customer who stays overnight at a Corps campground.

## **2 Data Analysis**

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### **1991 CRS Data**

The data summarized in this report were collected from the eight projects that participated in the CRS during 1991. The Engineer Forms 4457-1 collected by Greers Ferry Lake were received after the analysis process for 1991 had been completed. The CRS data were analyzed as independent recreation areas and projects, and then for the entire sample of projects. In this chapter, both the individual project and entire sample data are described. The recreation area data can be found in Appendix A.

### **Data Limitations**

The number of permits decreased from 114,042 in 1988 to 60,591 in 1990. This decrease is due to the absence of the project Greers Ferry Lake. This project represented 49 percent (55,855 permits) of the permits in 1988 and did not participate in the 1990 report. In 1991, 48,931 groups camped at eight of the CRS projects (Table 1). Table 1 correlates the number of permits issued in 1991 to the number of permits distributed in previous years 1988, 1989, and 1990. The quantity of permits issued at Lake Oahe in 1991 would have been greater, but only three out of five recreation areas were analyzed. Individual projects do not always use the same number of recreation areas to collect data each year as a result of environmental circumstances, construction development, accessible manpower, hardware failure, damaged data, and local project decisions.

### **1991 data**

Campers at the CRS recreation areas accounted for 511,825 recreation days<sup>1</sup> of use in 1991 (Table 2). The average occupancy rate ranged from 15.5 at Milford Lake to 60.7 at Lake Ouachita. The average for the entire CRS in

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<sup>1</sup> A recreation day was defined as a visit by one individual to the project for recreation purposes during all of any reasonable portion of the 24-hr period.

**Table 1**  
**1991 Camping Permit Summary<sup>1</sup>**

Project	Number of Permits				Number of Groups, 1991
	1988	1989	1990	1991	
Lake Barkley	. <sup>2</sup>	4,033	5,002	4,787	4,540
Hartwell Lake	-	7,130	7,601	12,193	8,445
Milford Lake	4,088	3,386	2,967	3,448	2,990
Lake Oahe	11,883	2,653	1,714	5,750	4,225
Lake Ouachita	7,555	7,842	9,396	7,506	5,391
Lake Shelbyville	10,254	13,708	15,166	15,850	12,803
Shenango River Lake	7,270	3,655	7,137	6,611	4,236
West Point Lake	10,336	6,176	8,063	7,684	6,301
CRS total	(51,386) <sup>3</sup>	(48,583)	(57,046)	63,829	48,931

<sup>1</sup> By comparing the number of permits issued for each project to the 1988, 1989, and 1990 record, changes in 1991 data (increases or decreases) can be noted.

<sup>2</sup> Project did not report for that particular year.

<sup>3</sup> Totals given in parentheses are for the projects reporting in 1991, not the total permits for 1988, 1989, or 1990 (DeMoss 1991, 1992; DeMoss and Trichell 1992).

1991 was an occupancy rate of 31.2, with a rate of 24.0 on the weekdays and 47.4 on the weekends.

The average length of stay ranged from 2.2 nights at Lake Milford to 3.5 nights at Lake Ouachita (Table 3). The average for the entire CRS in 1991 was 3.1 nights. The size of the camping parties in 1991 averaged 3.4 persons, ranging from 2.2 at Lake Oahe to 4.0 at Shenango River Lake. Nationwide, 82.0 percent of the parties had previously visited the project. This variable tends to show a broad range in variation between projects as evidenced by the value of 93.0 percent at Shenango River Lake and 50.0 percent at Milford Lake. Also, 92.5 percent of the camping parties at CRS projects indicated that the project was the primary destination for their trip. At Lake Shelbyville, 98.7 percent of the camping parties reported the project as the primary destination for their trip. At the individual projects, the lowest percentage of Golden Age passports was found at Shenango River Lake (16.9 percent) and the highest at Lake Barkley (32.2 percent).

For the cumulative 1991 data, an analysis of the type of vehicle(s) used by camping parties (Table 4) indicates that more parties used trucks (51.4 percent) than cars (34.6 percent). The highest percentage of truck use was at West Point Lake (61.8 percent), while the lowest percentage of car use was at Lake Oahe (16.3 percent). Relatively few of the camping groups arrived in vans

**Table 2**  
**1991 Calculated Use Characteristics**

Project	Recreation Days <sup>1</sup>	Occupancy Rate		
		Mean <sup>2</sup>	Weekends <sup>3</sup>	Weekdays <sup>3</sup>
Lake Barkley	40,325	31.9	46.9	25.7
Hartwell Lake	107,356	27.7	44.4	20.7
Milford Lake	22,309	15.5	29.1	10.0
Lake Oahe	31,241	28.9	44.2	22.8
Lake Ouachita	63,700	60.7	86.6	50.0
Lake Shelbyville	122,597	37.0	56.6	28.9
Shenango River Lake	56,393	37.6	39.8	28.0
West Point Lake	67,904	26.2	42.3	19.4
CRS total/mean	511,825	31.2	47.4	24.0

<sup>1</sup> Recreation days was calculated by multiplying the number in the group times the length of stay for each fee receipt. Each individual recreation day was then added to produce a project total. Any receipts not showing the number in group or length of stay were deleted from the calculations. Therefore, this measure of use may be conservative.

<sup>2</sup> Occupancy rate was calculated by the number of permits divided by (the number of nights x the number of sites) for the entire project.

<sup>3</sup> The weekend was represented by Friday night and Saturday night. Otherwise, it is counted as a weekday.

**Table 3**  
**1991 General Use Characteristics**

Project	Mean Length of Stay Nights	Mean Number in Group	Percent Prior Visits <sup>1</sup>	Percent Primary Destination <sup>1</sup>	Percent Golden Age Passport
Lake Barkley	3.2	2.8	71.2	79.2	32.2
Hartwell Lake	3.3	3.8	83.3	94.8	20.1
Milford Lake	2.2	3.3	50.0	79.8	19.5
Lake Oahe	2.7	2.2	75.1	84.5	31.4
Lake Ouachita	3.5	3.4	76.5	90.1	20.2
Lake Shelbyville	3.0	2.9	91.2	98.7	19.6
Shenango River Lake	3.5	4.0	93.0	97.8	16.9
West Point Lake	3.0	3.6	86.6	96.7	21.7
CRS total/mean	3.1	3.4	82.0	92.5	22.0

<sup>1</sup> Percent of camping parties.

**Table 4**  
**1991 Distribution of Vehicle Types**  
**(Percent of Camping Groups)<sup>1</sup>**

Project	Car	Truck	Van	Motor Home	Other <sup>2</sup>
Lake Barkley	27.8	47.3	11.7	18.7	1.2
Hartwell Lake	40.3	49.2	12.3	15.9	1.8
Milford Lake	29.5	55.7	15.6	16.5	0.5
Lake Oahe	16.3	52.2	12.5	26.5	2.7
Lake Ouachita	29.7	58.0	14.5	15.2	3.3
Lake Shelbyville	36.0	47.8	21.1	17.7	1.0
Shenango River Lake	55.5	43.9	18.0	14.0	0.4
West Point Lake	34.0	61.8	13.2	25.1	1.0
CRS total/mean	34.6	51.4	15.6	18.5	1.5

<sup>1</sup> These categories are not mutually exclusive. Camping groups could bring multiple types of camping equipment, which may account for nationwide totals that exceed 100 percent.

<sup>2</sup> This category includes any mode of transportation that was not listed, including motorcycles, bicycles, etc.

(15.6 percent), motor homes (18.5 percent), or via other modes of transportation (1.5 percent).

During 1991, as shown in Table 5, the most popular type of camping equipment at the CRS projects was a tent (35.5 percent nationwide). At Lake Shelbyville and Lake Ouachita, 41.7 and 41.5 percent, respectively, of the camping parties used at least one tent. It must be noted that the equipment categories are not mutually exclusive; therefore, tents may not necessarily be the principal means of camping for those groups that reported using them. Overall, the nationwide averages of other types of camping equipment included travel trailers (26.0 percent), pop-up trailers (10.0 percent), and pickup campers (5.4 percent). In terms of other recreation equipment, more than one-third (37.1 percent) of all camping parties brought a powerboat to CRS projects. The mean use of sailboats was minimal (8.9 percent) at CRS projects; however, 82.9 percent of camping parties at Shenango River Lake brought a sailboat.

## Trend Analysis

One of the primary purposes of the CRS was to create a database that would enable the prediction of trends in recreational use. Each year of data collection improves the predictability of a trend analysis. A comparison of the CRS databases for the years 1985 through 1991 is presented in Figures 2-15. Where no bars appear on the bar charts, data were unavailable or missing.

**Table 5**  
**1991 Distribution of Camping Equipment and Powerboats**  
**(Percent of Camping Groups)<sup>1</sup>**

Project	Tent	Pop-up Trailer	Pickup Camper	Travel Trailer	Powerboat	Sailboat
Lake Barkley	23.3	6.6	5.3	29.2	34.5	0.5
Hartwell Lake	37.0	12.4	2.7	26.3	22.3	1.8
Milford Lake	33.4	5.6	7.3	27.8	42.9	0.9
Lake Oahe	21.6	6.1	14.1	29.0	42.8	0.4
Lake Ouachita	41.5	10.0	3.3	28.4	39.6	6.7
Lake Shelbyville	41.7	12.6	5.5	23.8	41.8	0.5
Shenango River Lake	39.5	10.9	4.9	20.8	33.7	82.9
West Point Lake	32.1	7.7	4.3	26.7	43.2	3.5
CRS total/mean	35.5	10.0	5.4	26.0	37.1	8.9

<sup>1</sup> These categories are not mutually exclusive. Camping groups could bring multiple types of camping equipment, which accounts for nationwide totals that exceed 100 percent.

Because of the inadequacy of forms for the 1986-87 data (DeMoss and Titre 1990), Lake Oahe was not included in the 1987 analysis. Also, because of a very high rate of "no response" at Lake Barkley, Lake Ouachita, and Lake Shelbyville (1987), the values in Figures 7-15 are extremely low. Lake Barkley and Hartwell Lake did not participate in the 1988 study (DeMoss 1991). Therefore, the figures also reflect this lack of information in all charts.

Across these eight projects, mean party size has not changed dramatically since 1985 (Figure 2). For Lake Shelbyville, the averages continued to decrease and increase from 3.7 in 1985 to 3.3 in 1991. From 1988 to 1991, the largest mean difference is seen at Lake Ouachita (0.6). Mean length of stay (Figure 3) exhibits greater variation among the projects than mean party size. The averages ranged from a low of 1.8 nights for 1985 at Milford Lake to a high of 4.5 during 1986 at Lake Shelbyville.

From 1985 to 1991, a general increase occurred in the percentage of campers with prior visits to the project and with the project as their primary destination (Figures 4 and 5). With the exception of one decrease in 1991 (50.0 percent), Milford Lake shows an ascension of campers with prior visits from 44.0 percent in 1985 to 98.7 percent in 1990. Also, Lake Barkley and Lake Oahe showed a decrease in 1990 and 1989, respectively. For Lake Ouachita, the percent of campers with primary destination increased from 31.7 in 1985 to 90.1 in 1991.



Golden Age passport use tended to be highly variable between projects, yet fairly stable within projects with a few exceptions (Figure 6). Percentages ranged from 49.3 percent for Shenango River Lake in 1985 to 16.9 percent in 1991. Also, the 3.1 percent for Lake Oahe in 1990 was because Lake Oahe's data were for only 2 months. In 1985, Lake Barkley, Lake Oahe, Shenango River Lake, and West Point Lake displayed relatively high percentages of visitors with Golden Age passports. All projects either show a decrease in the percent of visitors with Golden Age passports, or the percent stayed about the same over the years.

Parties with cars displayed consistent patterns over the 7-year period (Figure 7). Each project showed a decrease since 1985 in the use of cars with the exception of Shenango River Lake, which shows a small increase but still not greater than its 1985 value. Parties with trucks (Figure 8) exhibited a stable pattern of slight increases and decreases. Excluding the 1986 and 1987 data, the low would be 31.1 percent at Lake Barkley and a high of 61.8 percent at West Point Lake (1991).

Figure 9 shows a slight increase in the use of vans by camping parties except at Lake Hartwell and West Point Lake. Van use at Hartwell Lake increased from 8.8 percent in 1985 to 14.3 percent in 1987 and decreased to 12.3 percent in 1991. At West Point Lake, the use of vans increased from 12.9 percent in 1985 to 13.8 percent in 1989 and decreased to 11.6 percent in 1990; however, it increased to 13.2 percent in 1991.

Motor home use exhibited considerable variability across projects as can be seen in Figure 10. The highest overall use occurred at Lake Oahe and West Point Lake. Lake Oahe showed a decrease from 31.0 percent in 1985 to 24.1 percent in 1990 with a slight elevation to 26.5 percent in 1991. Overall, the use of motor homes as camping vehicles was low compared with other types of camping equipment. Shenango River Lake and Milford Lake exhibited the most consistent use of motor homes as camping vehicles.

As shown in Figure 11, a stable pattern of parties with tents was clearly evident within each project except at Lake Ouachita. However, the pattern among projects displayed a decrease in use or a very slight increase. For example, the lowest use occurred at Lake Barkley and Lake Shelbyville, where 8.9 percent of the camping parties in 1987 used tents. The highest occurrence was 62.8 percent, in 1985, for parties at Lake Ouachita, with a decrease to 41.5 percent in 1991.

The use of pop-up trailers tended to be fairly stable across and within projects, with the exception of a single high value of 62.3 percent at Hartwell Lake in 1985 (Figure 12). There was a general decrease, with the exception of West Point Lake and Lake Shelbyville. This was similar to camping parties with pickup campers (Figure 13), in which a pattern of a decrease was shown within each project. The use of this type of camping equipment was very low for projects such as Hartwell Lake (2.0 percent in 1989); in contrast, pickup

campers were more popular at Lake Oahe, with a high of 20.0 percent of the camping parties in 1985 using them.

In contrast to the previous figure, Lake Barkley shows the overall highest use of travel trailers. Percentages ranged from 36.8 to 4.1 at Lake Shelbyville (Figure 14). Most projects report the use of this equipment to be an average of about 25 percent.

Except for the 1986-87 data record, the use of powerboats tended to be relatively uniform across projects except at Lake Barkley and Lake Oahe. Powerboat use by camping parties decreased at Lake Barkley from 43.6 percent in 1985 to 34.5 percent in 1991 (Figure 15). At Lake Oahe, the operation of powerboats decreased from 52.2 percent in 1988 to 42.6 percent in 1991.

## **Potential Uses of CRS Database**

### **Analysis of visitor origin**

In Figures 16-23, an analysis was performed using Zip Codes to reveal the origin of camping parties to CRS projects. The figures show how projects differ in relation to their ability to draw visitors from different parts of the country. For each figure, the first map (Figure 16a, for example) illustrates all visitors, while the second map (Figure 16b) shows only visitors that claimed this project as their primary destination. For all maps, the percent of visitors utilized only four of the five categories. Either the percent of visitation was above 50 percent or it was less than 25 percent. Figure 22 illustrates that the Shenango River Lake, on the northwestern border of Pennsylvania, received visitors from the Mid-Atlantic, Great Lakes area, Georgia, Florida, and Texas. The majority of these users, however, were from just two states: Pennsylvania and Ohio. In contrast, Lake Barkley (Figure 16), which is located on the western border of Kentucky, received visitors from a broader number of states. In addition, the majority of those users were from a six-state region rather than a two-state region. At two CRS projects, there was no visual difference between the two maps. The removal of the primary destination visitors did not change the percentage in any of the states for Lake Shelbyville (Figure 21) and Shenango River Lake. Lake Barkley, Lake Hartwell (Figure 17), and West Point Lake (Figure 23) showed only a difference of one state between the two maps. However, a more observable variation can be seen between the two map illustrations at Milford Lake (Figure 18) and Lake Ouachita (Figure 20).

### **Occupancy rates**

Additional uses of the CRS include an examination of occupancy rates. Occupancy rates are a key indicator of economic viability in the hotel-motel industry. They were also used successfully to reveal a decline of 19 percent in

average daily occupancy rates for nationwide camping during the 1978 fuel shortage (LaPage and Cormier 1979).

Campsite occupancy rates were examined by year and month and on a daily basis. The month of July was chosen since the months of June, July, and August are usually the months of highest usage (Appendix B). A calendar was used to show how camping is distributed throughout the month (Figure 24). However, the three highest months were used in the calculation of the monthly and yearly occupancy rates. For most projects, the months of May through August were the highest use months. Watsadlers, a campground located at Lake Hartwell, received the most use in March. Lake Ouachita was the only project that did not show July as one of its three high use months. A special event such as flooding or drought could decrease the monthly occupancy rates; however, Figure 24 shows the most "normal" occupancy rate. It shows a high occupancy rate for the first week of July (a holiday). The following weeks of July return to the "normal" rates, with lower values on Sunday through Thursday and a jump to high values on weekends (Friday and Saturday).

This type of analysis will hopefully be useful and help managers evaluate utilization patterns at campgrounds.

### **Fee paid per site**

In Table 6, the total fee revenue generated per campsite was calculated for each project. This statistic was calculated by taking the total fee revenue generated at each project and dividing that amount by the total number of campsites at each project. This formula can be found in Appendix C, along with other formulas used in analyzing 1991 CRS data. Lake Hartwell had the highest revenue per site at \$689.57, and Shenango River Lake was the lowest at \$137.78. This information can be used to show on the average how much revenue each site is contributing to the project and to compare the fees collected at different projects.

**Table 6**  
**Total Fee per Site Paid at Each Project, 1991**

Project	Fee Paid per Site <sup>1</sup>	Number of Sites
Lake Barkley	589.53	219
Hartwell Lake	689.57	588
Milford Lake	206.40	347
Lake Oshe	172.83	355
Lake Ouachita	443.90	215
Lake Shelbyville	517.28	687
Shenango River, Lake	137.78	346
West Point Lake	356.78	505
<sup>1</sup> Represents the total fee paid at each project divided by the number of sites at each project.		

### **3 Conclusions and Recommendations**

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#### **Conclusions**

The recent availability of computer technology at the field level has dramatically changed the possibilities regarding data entry and retrieval for analysis and reporting of campground information. The development of the Automated Use Permit System (AUPS) (Fritschen 1988) was an advancement in the direction of computer-aided management information systems. AUPS allows campground attendants to use microcomputers to register campers and collect and summarize camping fees. It was designed to incorporate the data requirements of the CRS so that any Corps project utilizing AUPS can collect CRS data. CRS-related questions are displayed by AUPS while campers register according to whether a program "switch" was set. This capability eliminates the need for keypunching and error checking and provides some onsite data analysis capability.

Currently, field-level personnel can use dBASE software to generate reports on variables such as site occupancy, average length of stay, Zip Codes, average group size, and number of Golden Age and Access permit holders. AUPS provides data that managers can review to resolve problems in a timely manner or to improve the efficiency of operating and maintaining campgrounds. These data can be useful to planners when evaluating future recreation area designs, as well as rehabilitation projects. For example, District planners can compare key variables such as site occupancy across projects and recreation areas, since the data have been gathered using the same methods.

The applications illustrated in this report are merely examples for managers to use to identify additional applications. The transition from paper forms to the AUPS will enhance future management applications of the data.

## **Recommendations**

The data in the CRS and the AUPS have reached the point at which project managers and District personnel can make decisions rapidly in response to on-the-ground changes in the use of Corps areas. This AUPS/CRS combined system has been shown to improve overall efficiency and can address current problems by giving resource managers better information to manage within a constantly changing environment. It is recommended that the CRS effort continue and that researchers and managers search for common ground in devising strategies to better serve the Corps visitor, based on current information.

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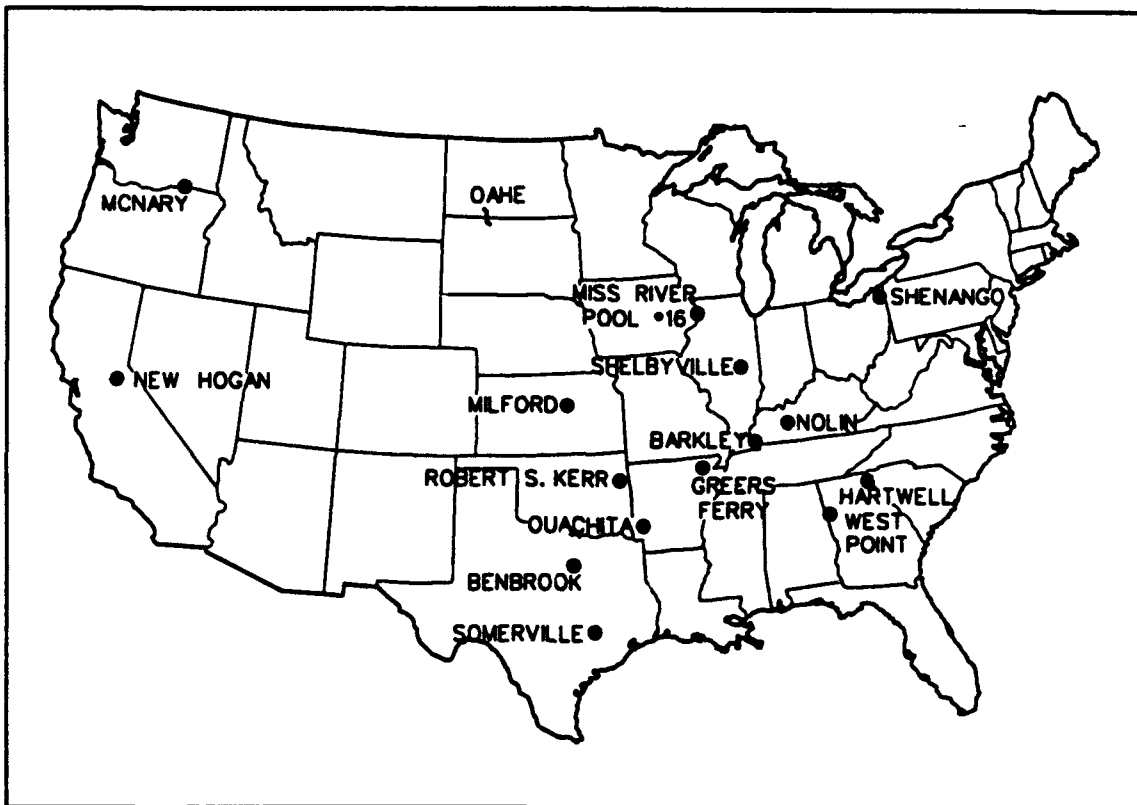


Figure 1. Campground Receipt Study project locations

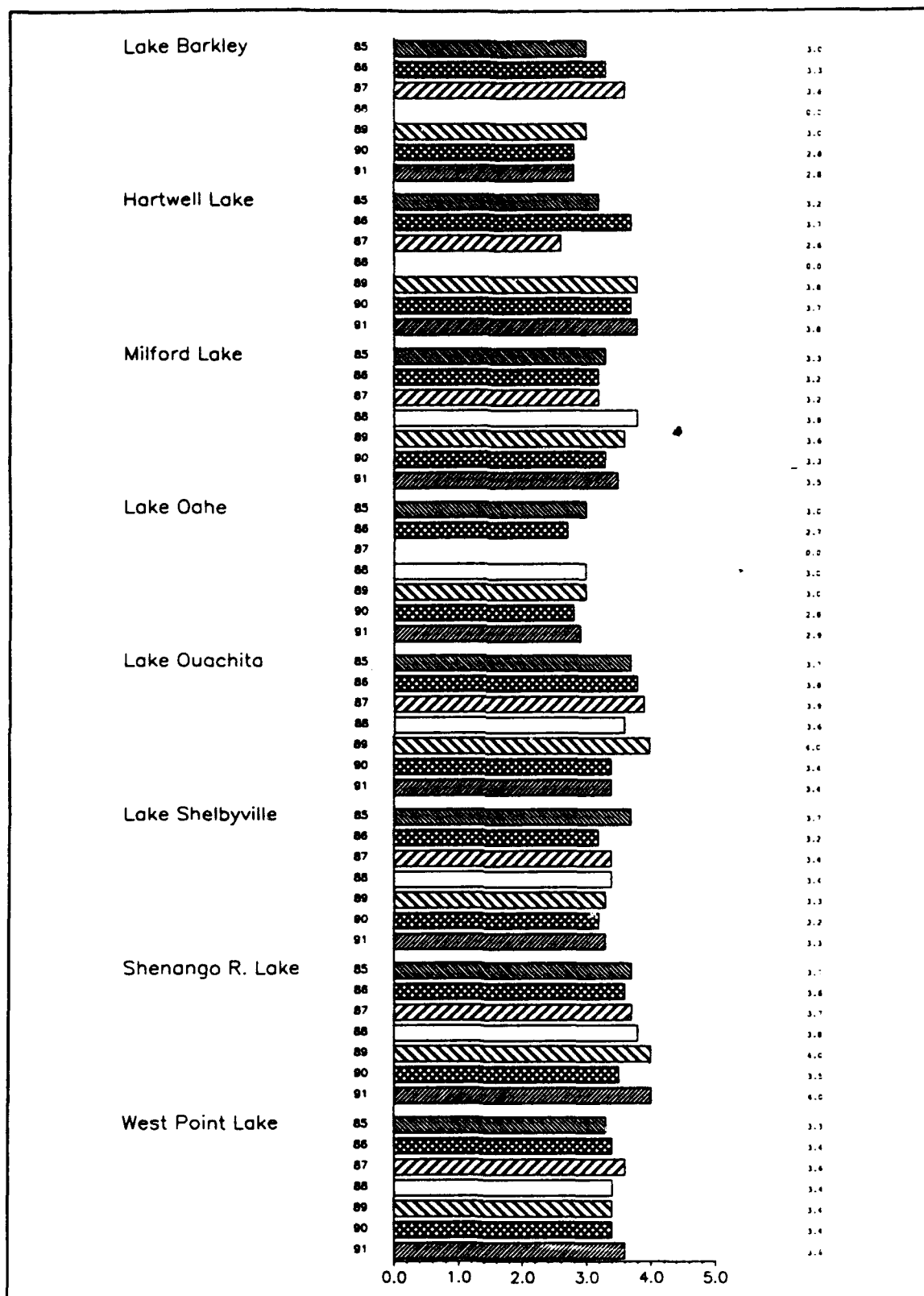


Figure 2. Mean number in party, 1985-91

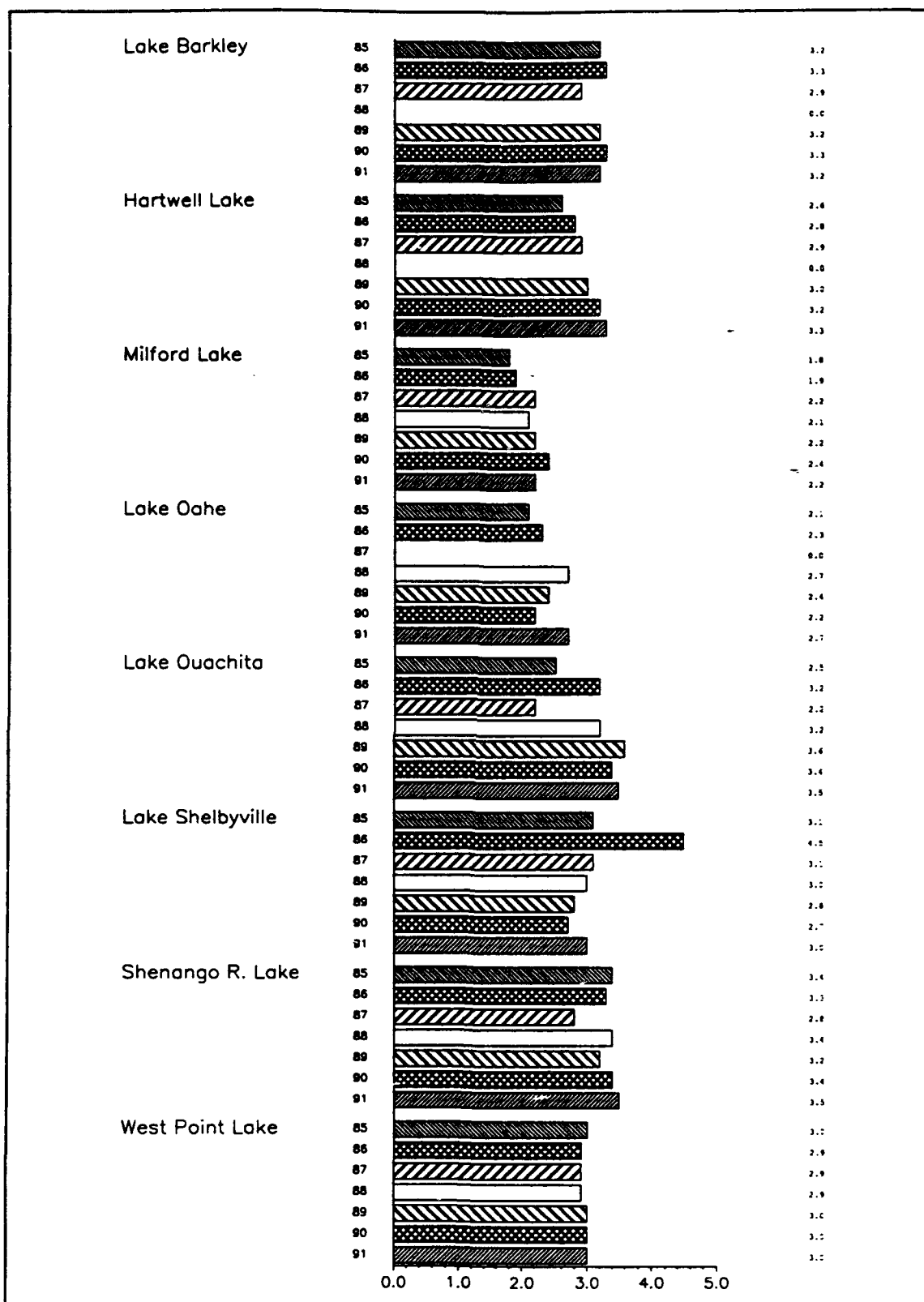


Figure 3. Mean length of stay (in days), 1985-91

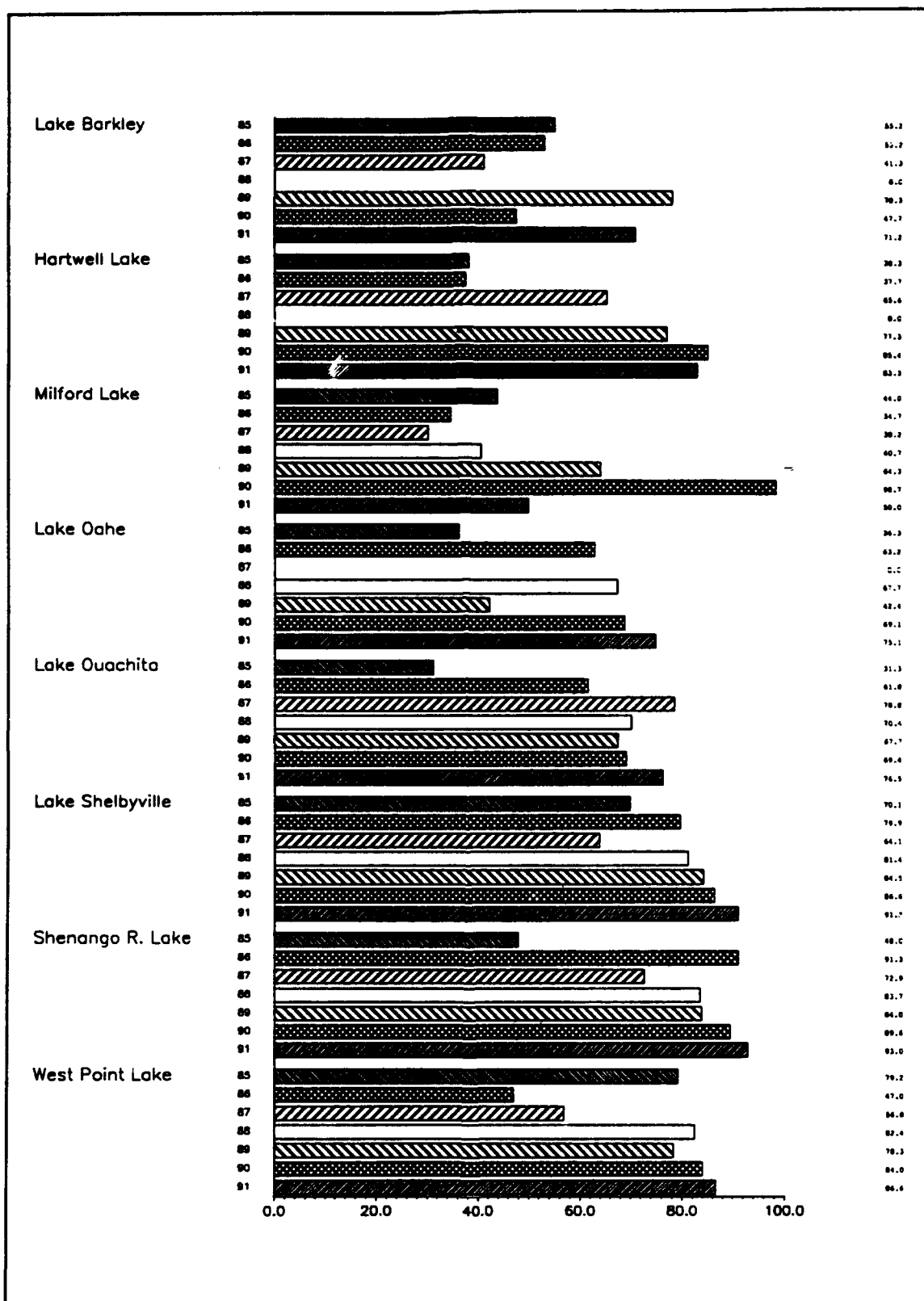


Figure 4. Percent of camping parties with prior visits to the project, 1985-91

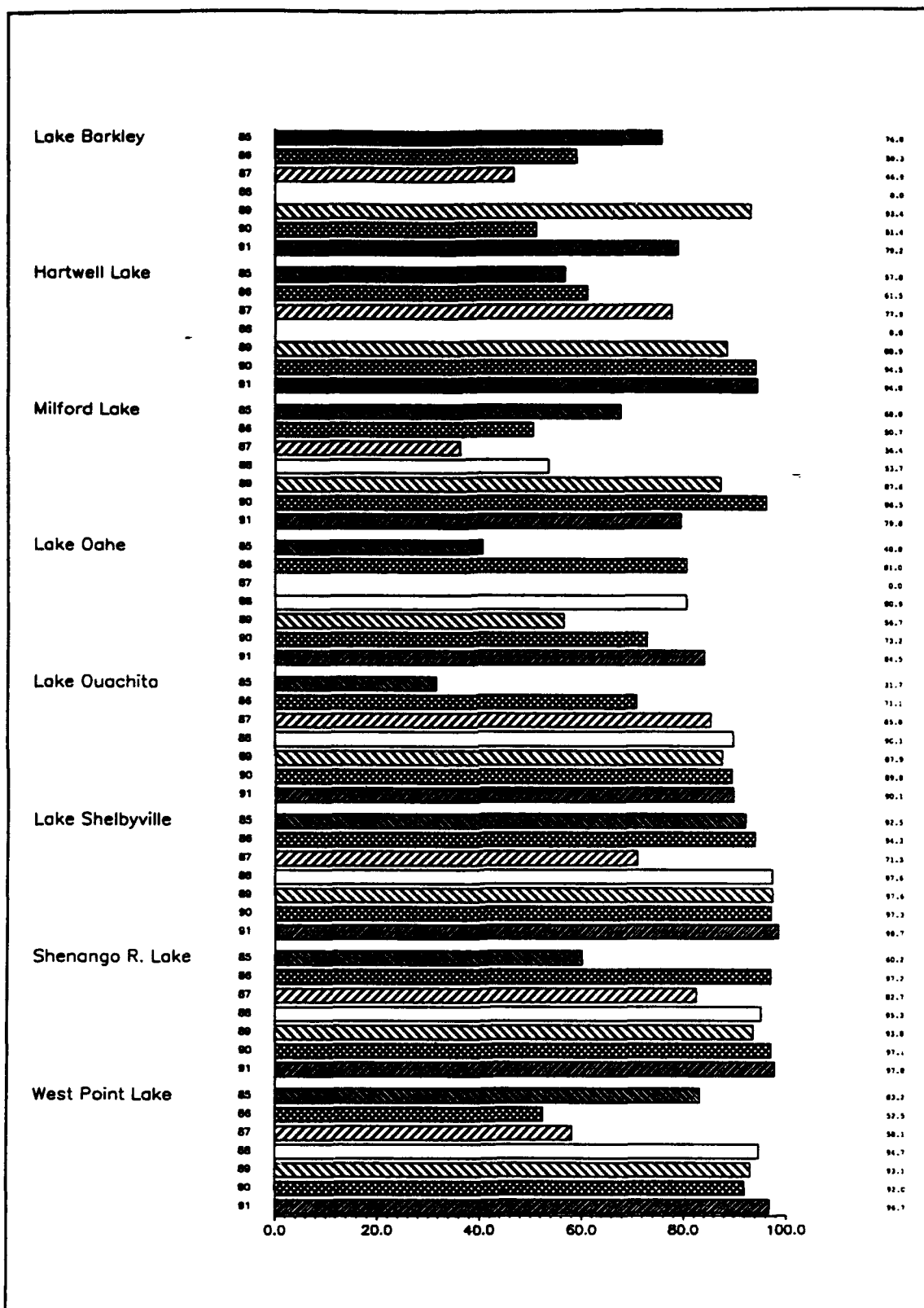


Figure 5. Percent of camping parties having the project as their primary destination, 1985-91

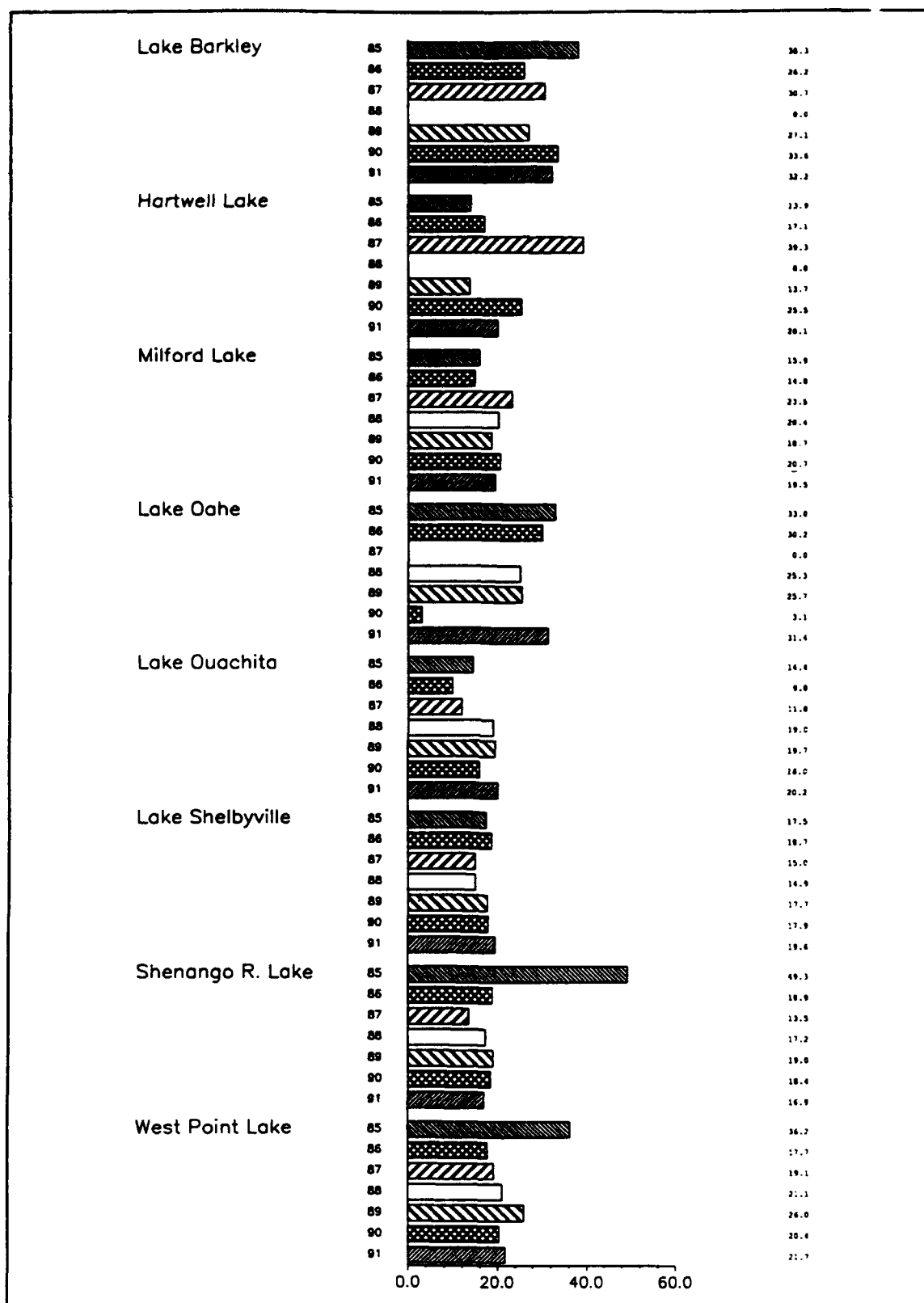


Figure 6. Percent of camping parties using Golden Age passports, 1985-91

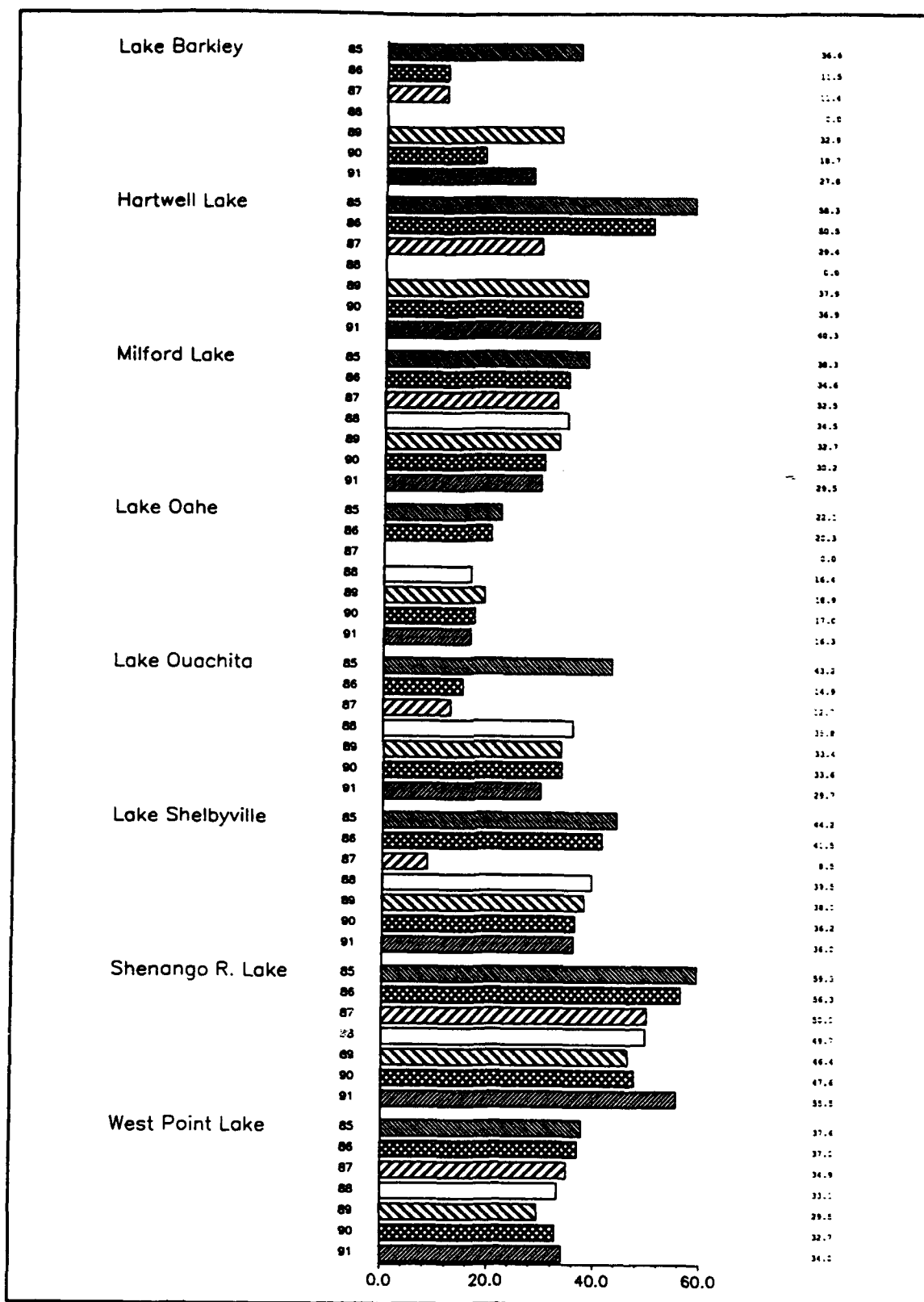


Figure 7. Percent of camping parties with cars, 1985-91

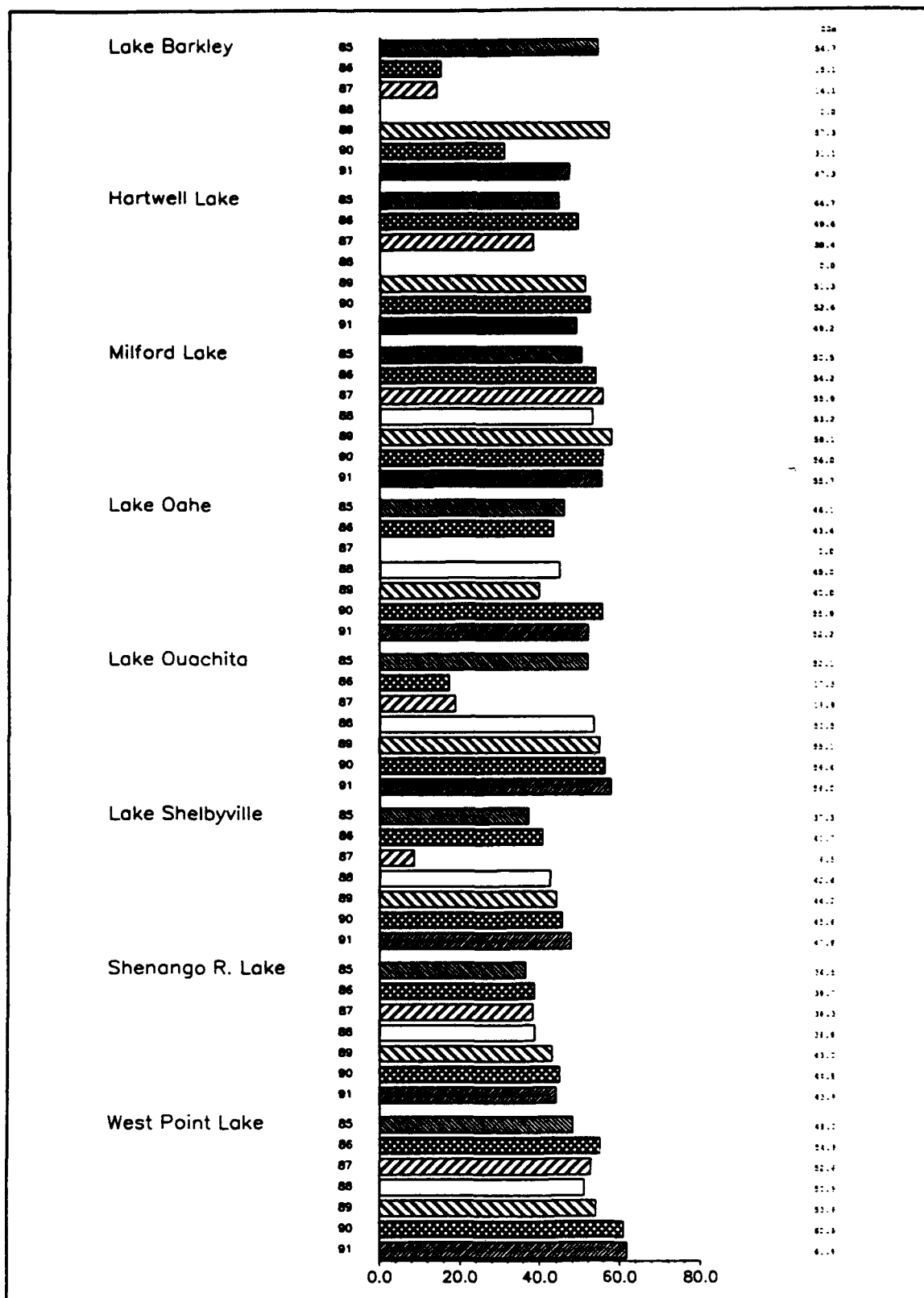


Figure 8. Percent of camping parties with trucks, 1985-91



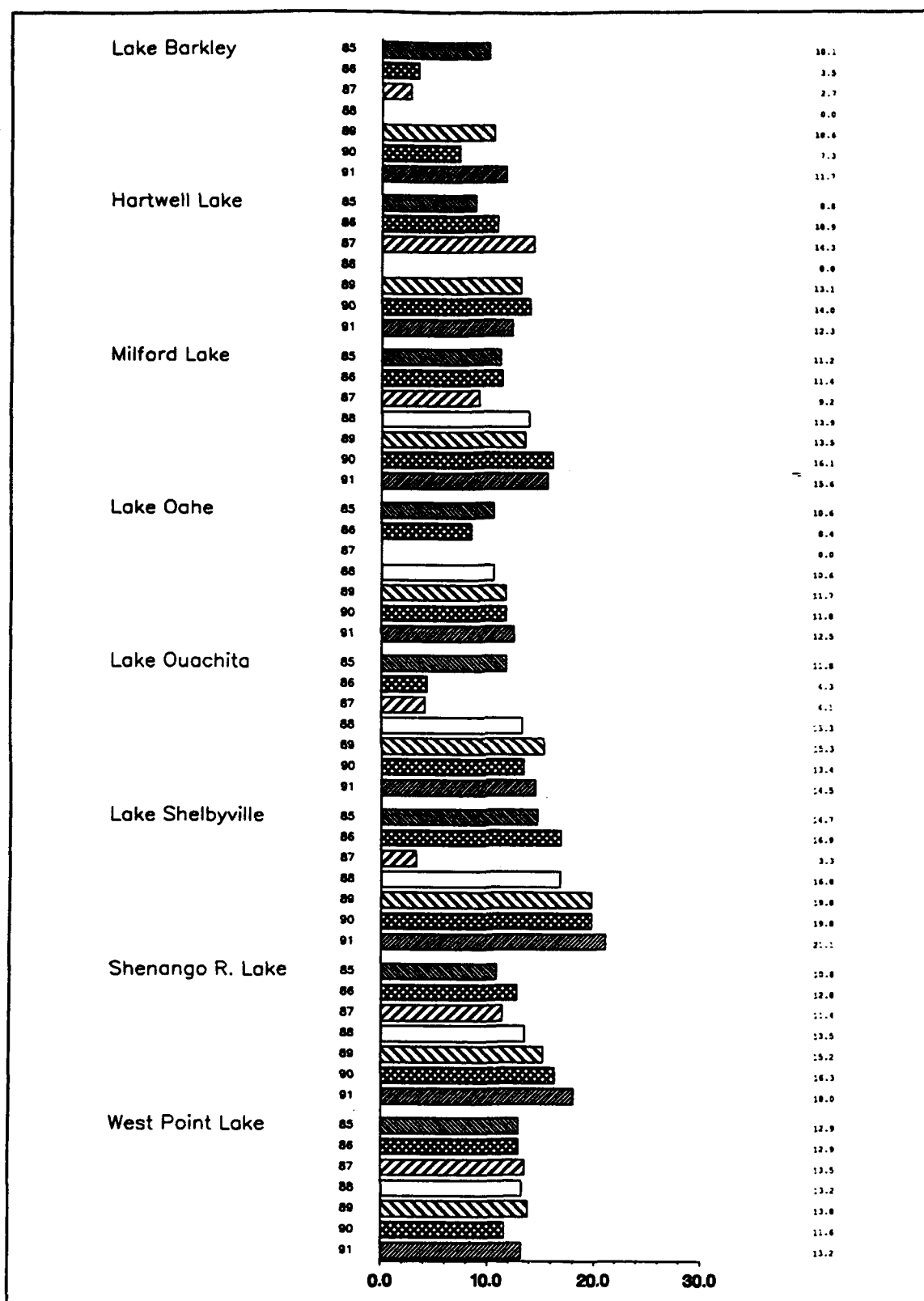


Figure 9. Percent of camping parties with vans, 1985-91

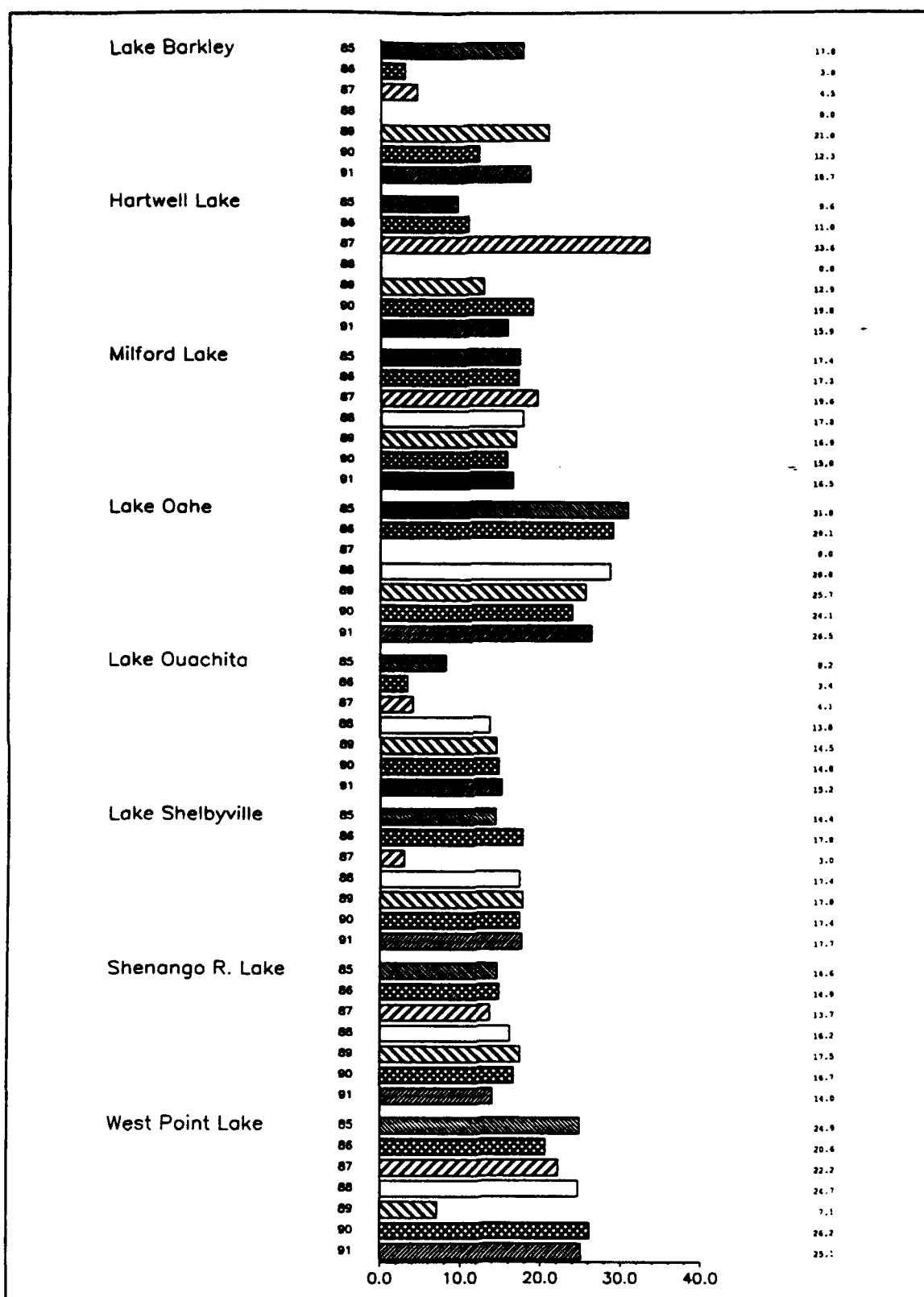


Figure 10. Percent of camping parties with motor homes, 1985-91

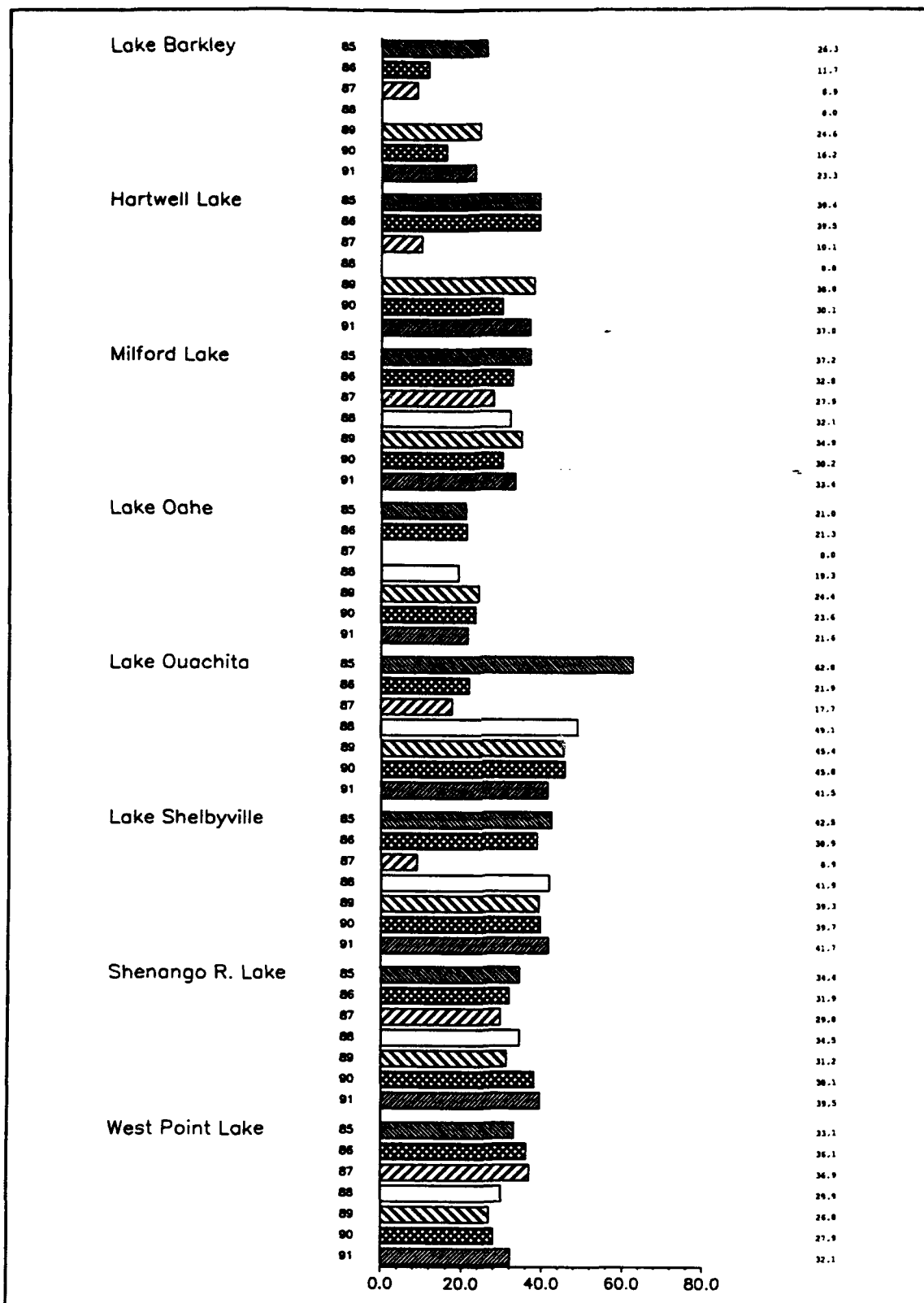


Figure 11. Percent of camping parties with tents, 1985-91

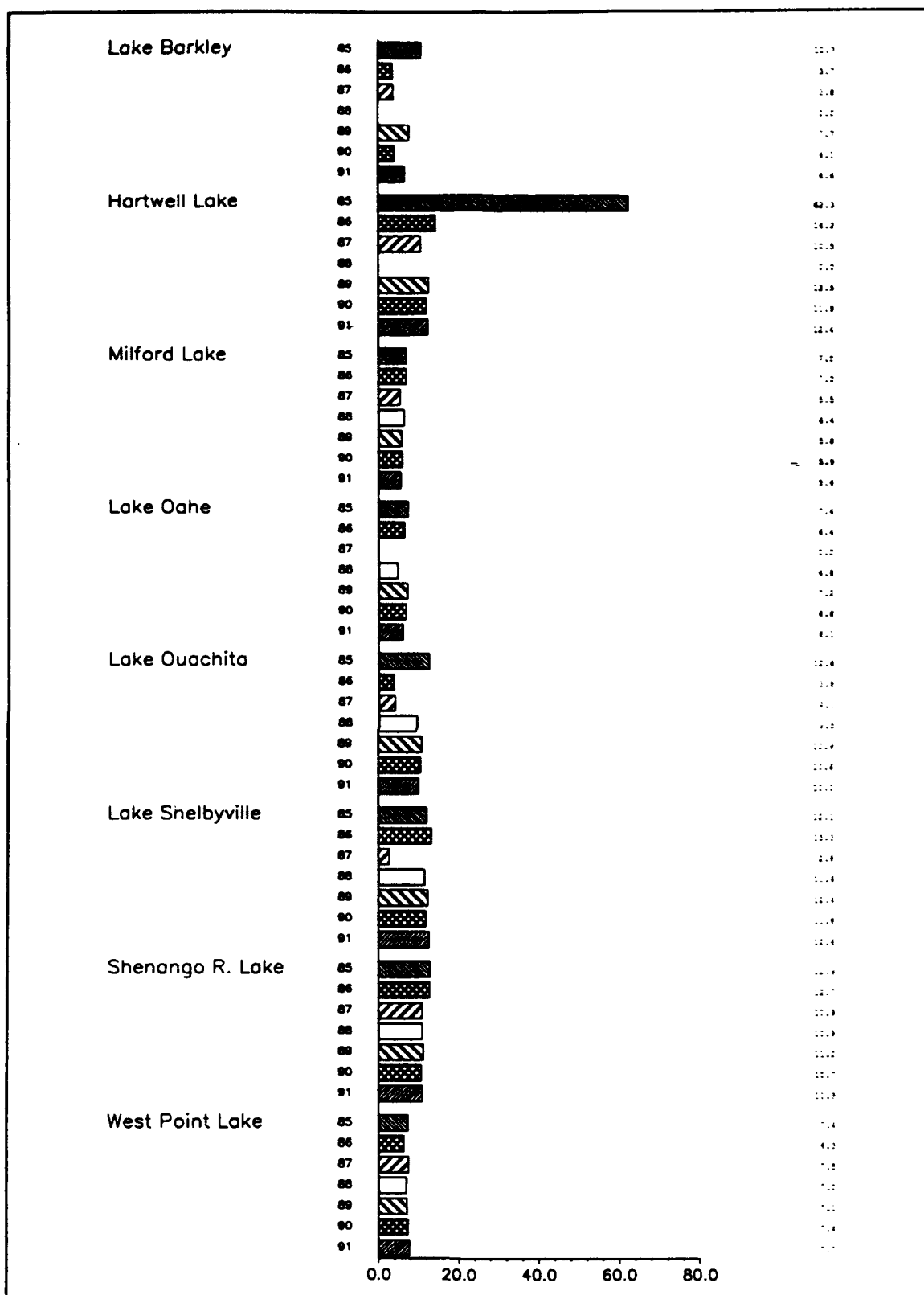


Figure 12. Percent of camping parties with pop-up trailers, 1985-91

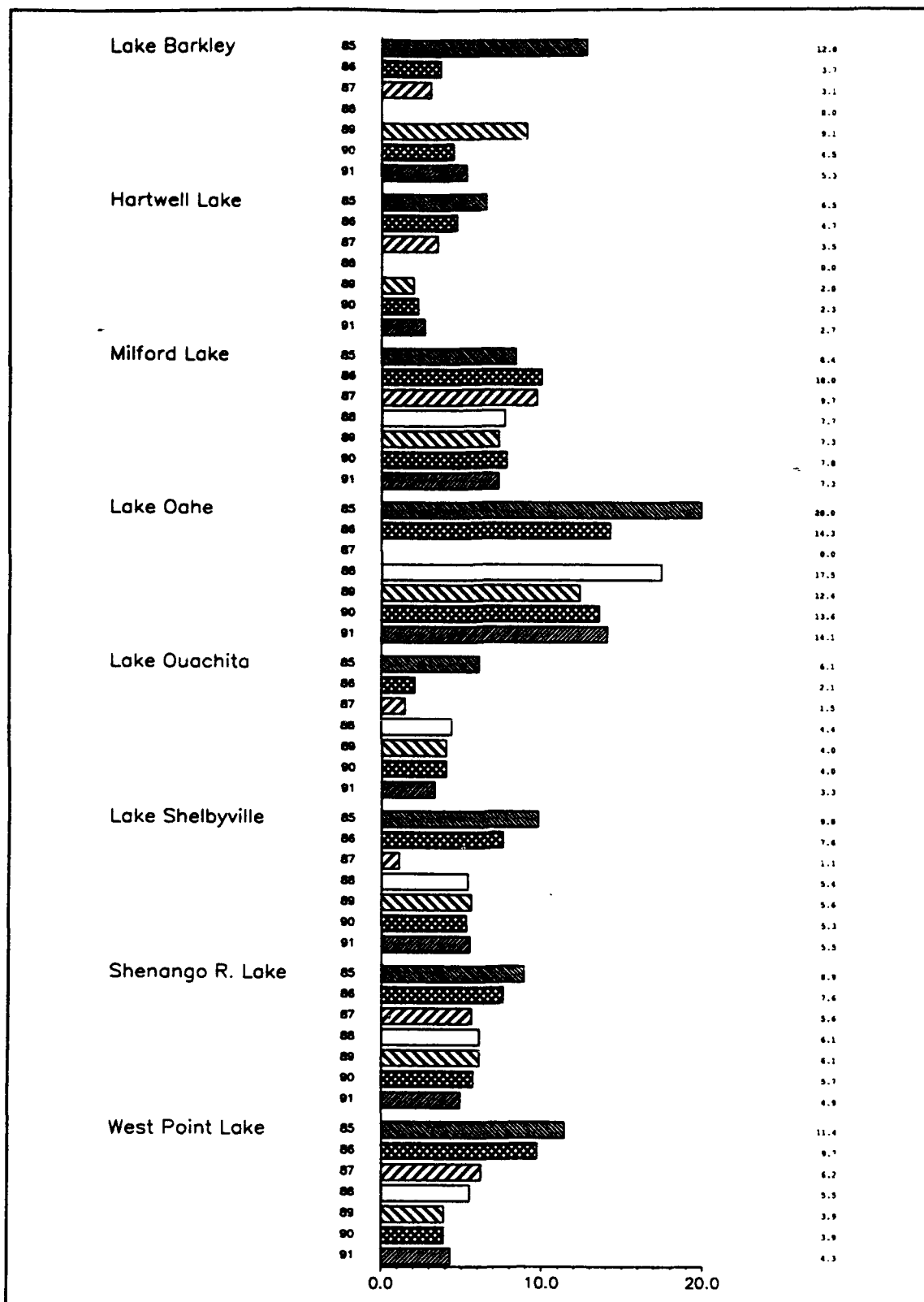


Figure 13. Percent of camping parties with pickup campers, 1985-91

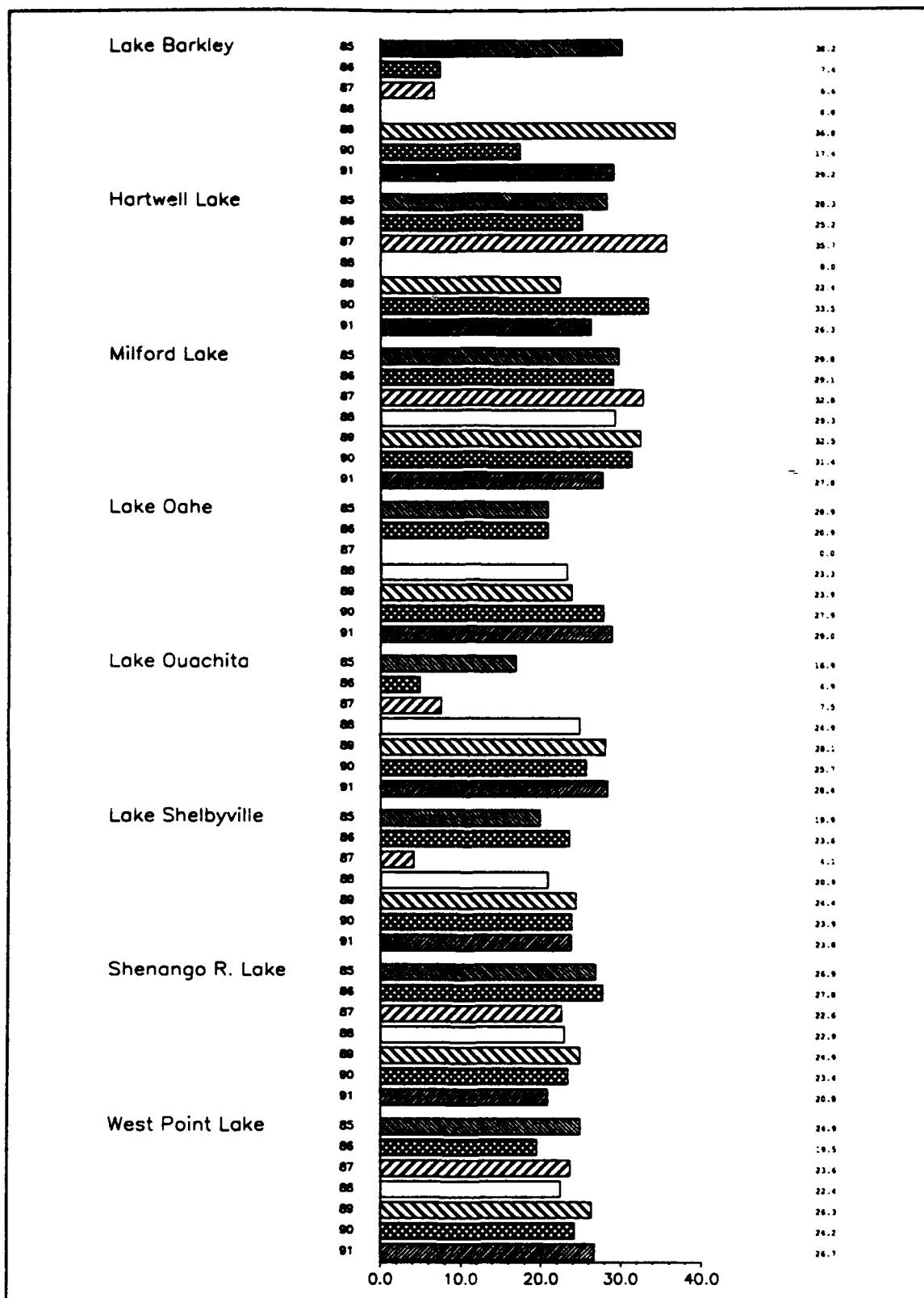


Figure 14. Percent of camping parties with travel trailers, 1985-91

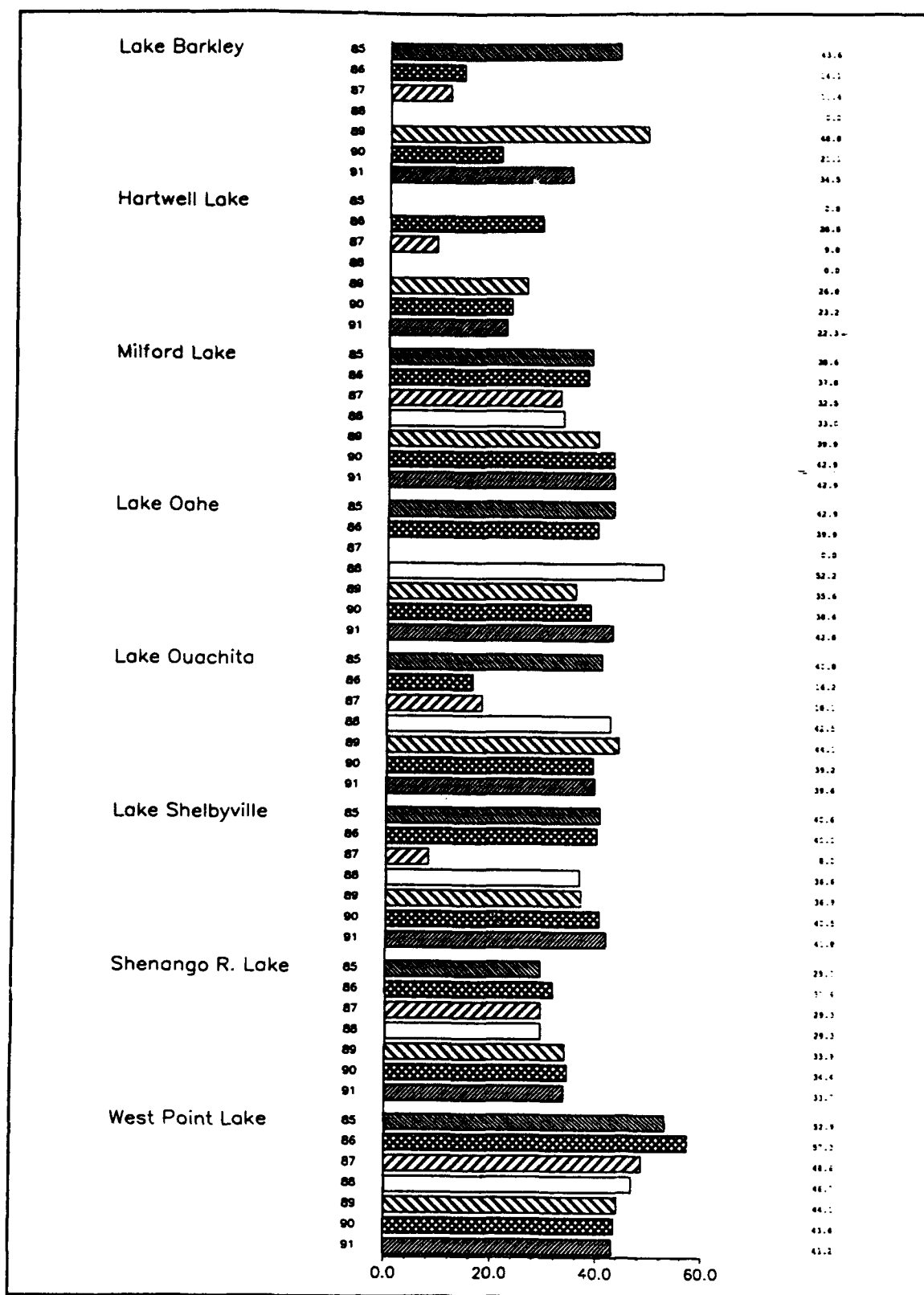


Figure 15. Percent of camping parties with powerboats, 1985-91

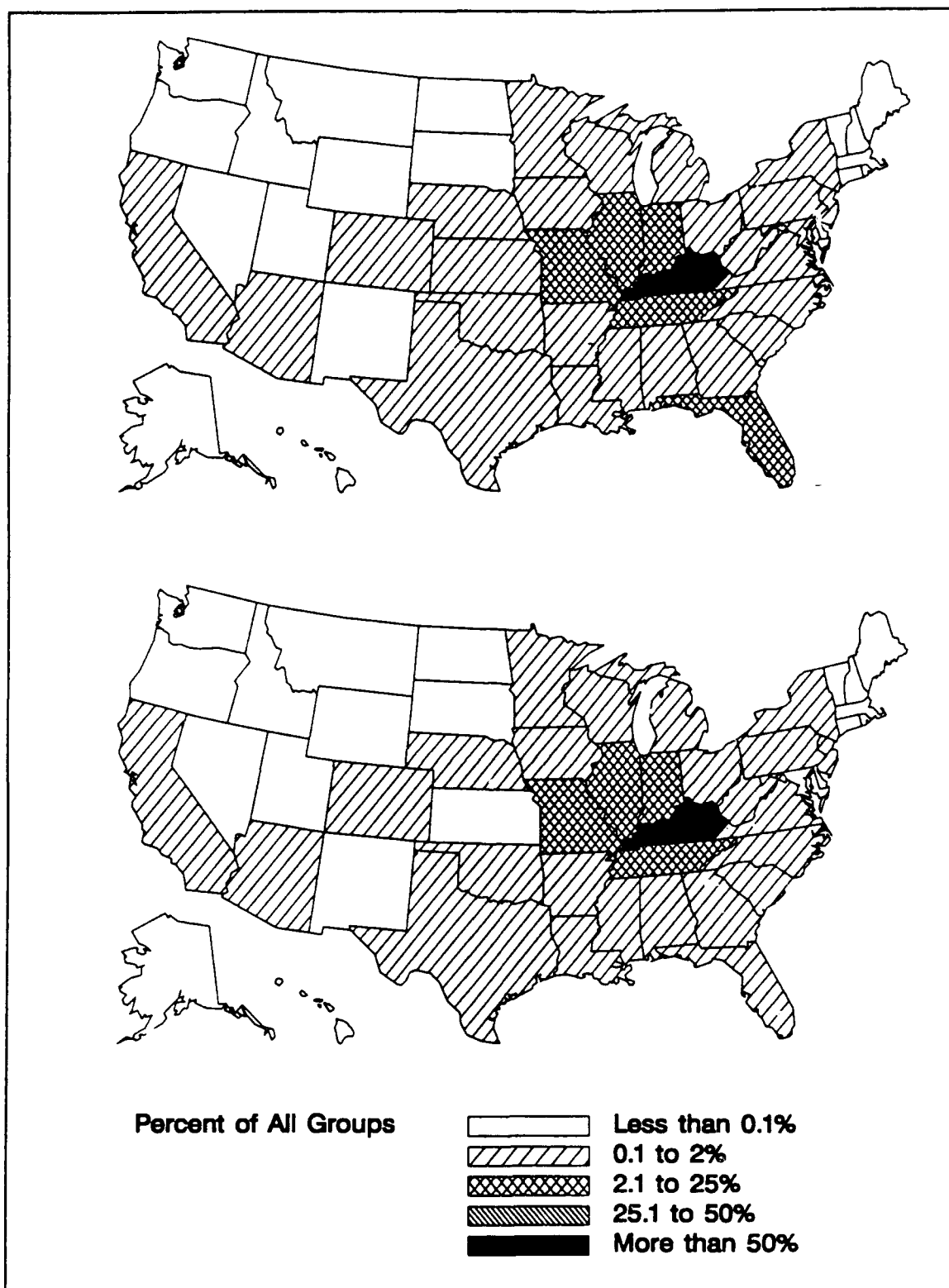


Figure 16. Lake Barkley, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)



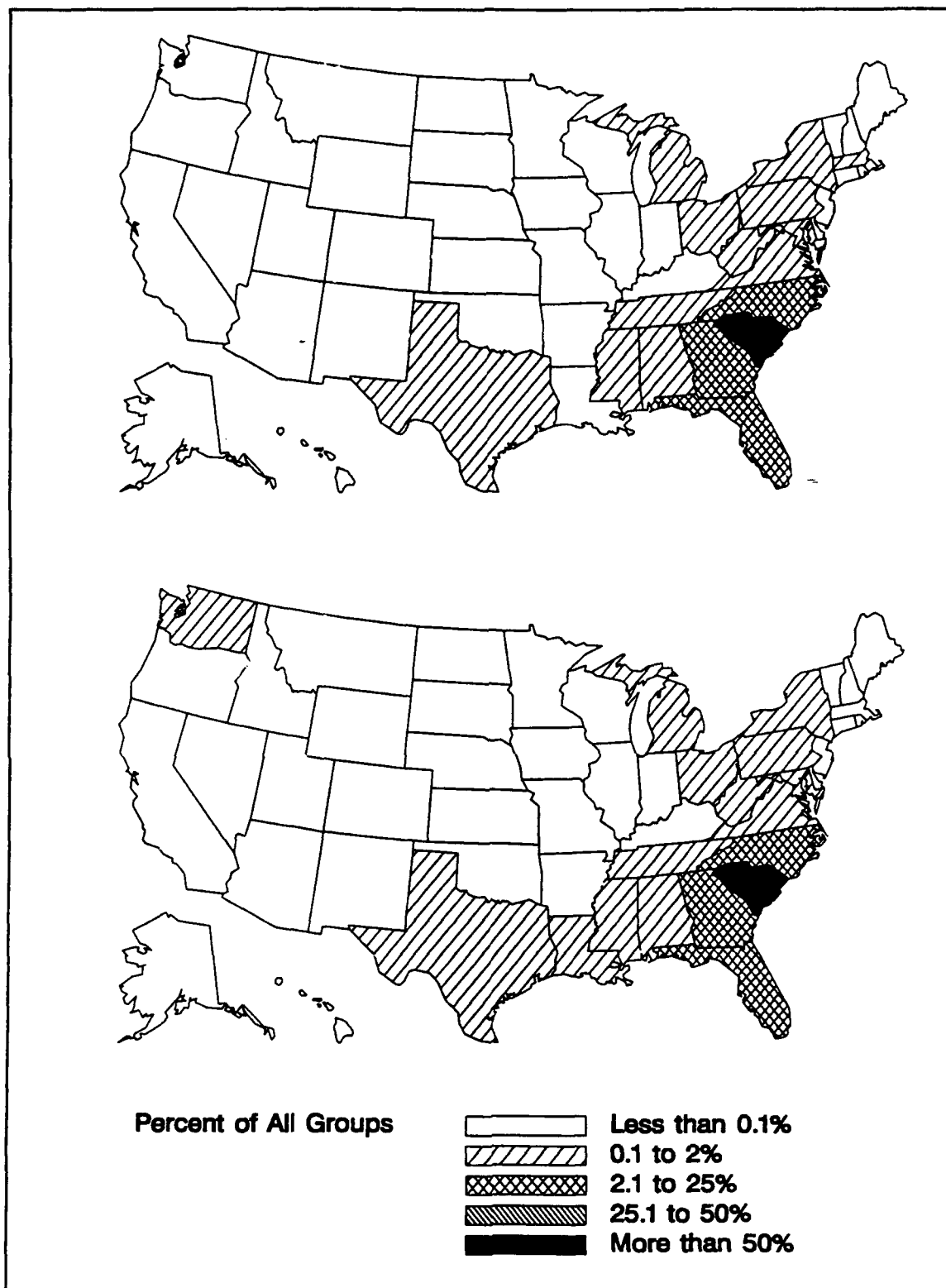


Figure 17. Hartwell Lake, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

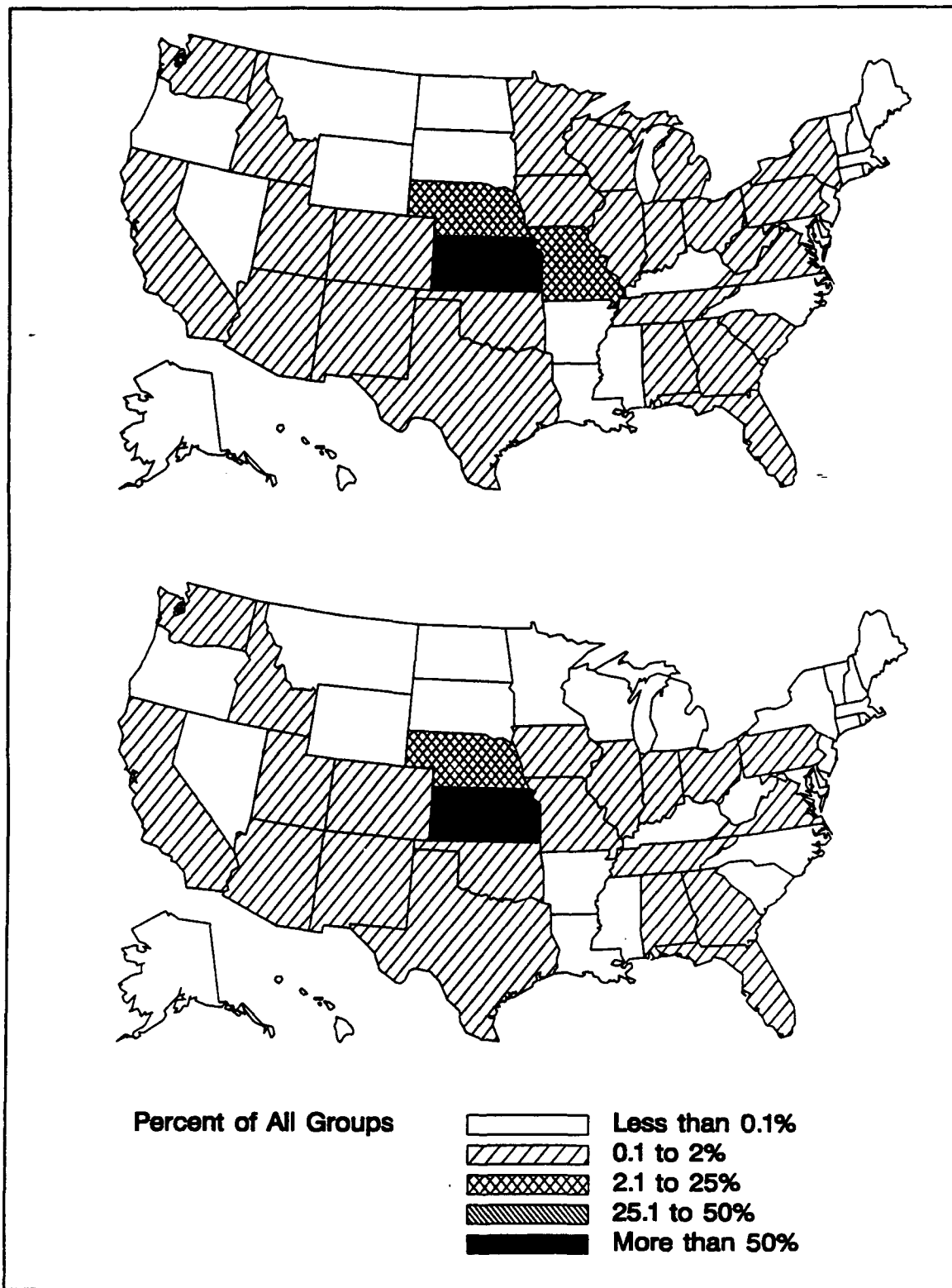


Figure 18. Milford Lake, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

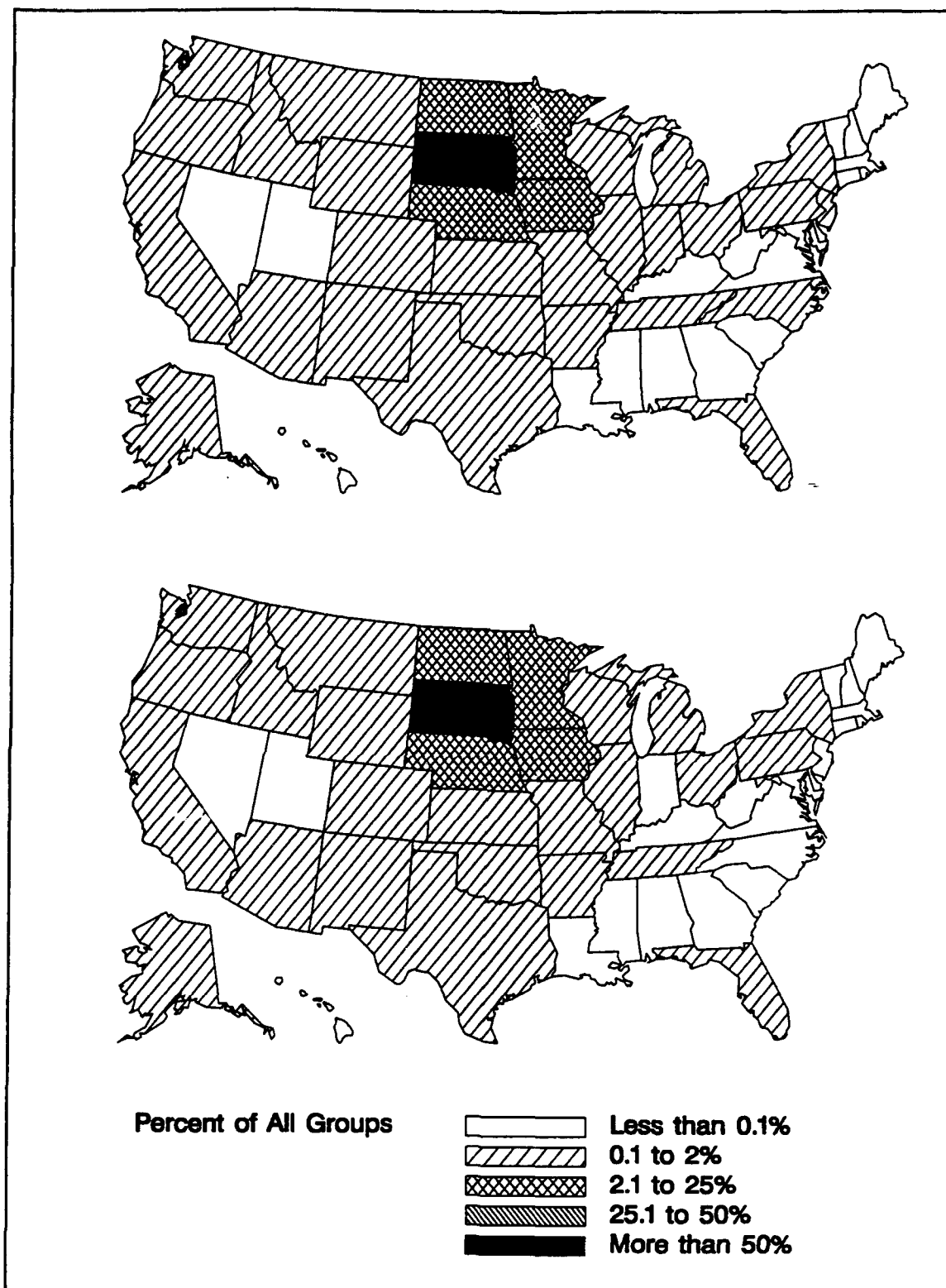


Figure 19. Lake Oahe, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

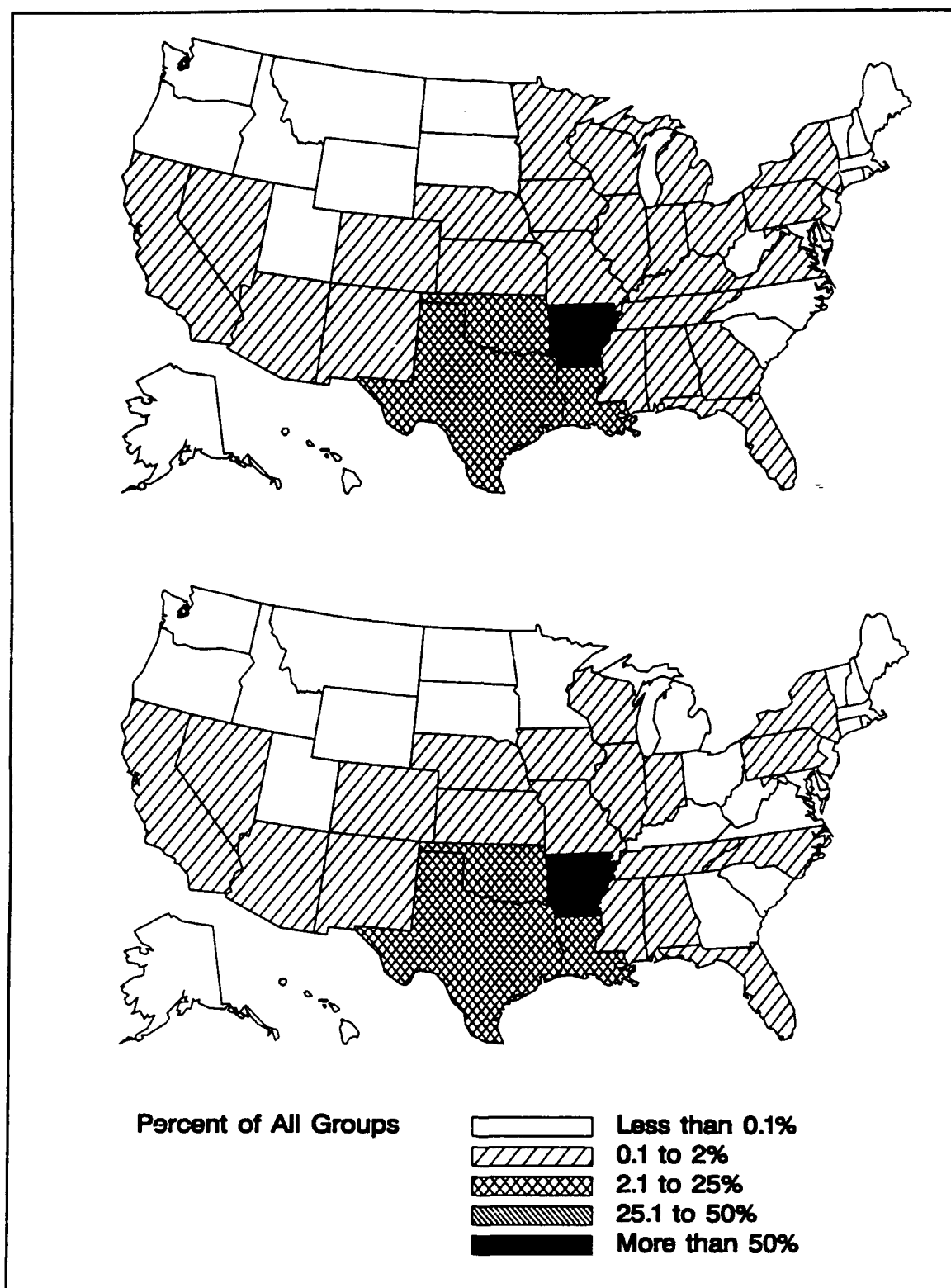


Figure 20. Lake Ouachita, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

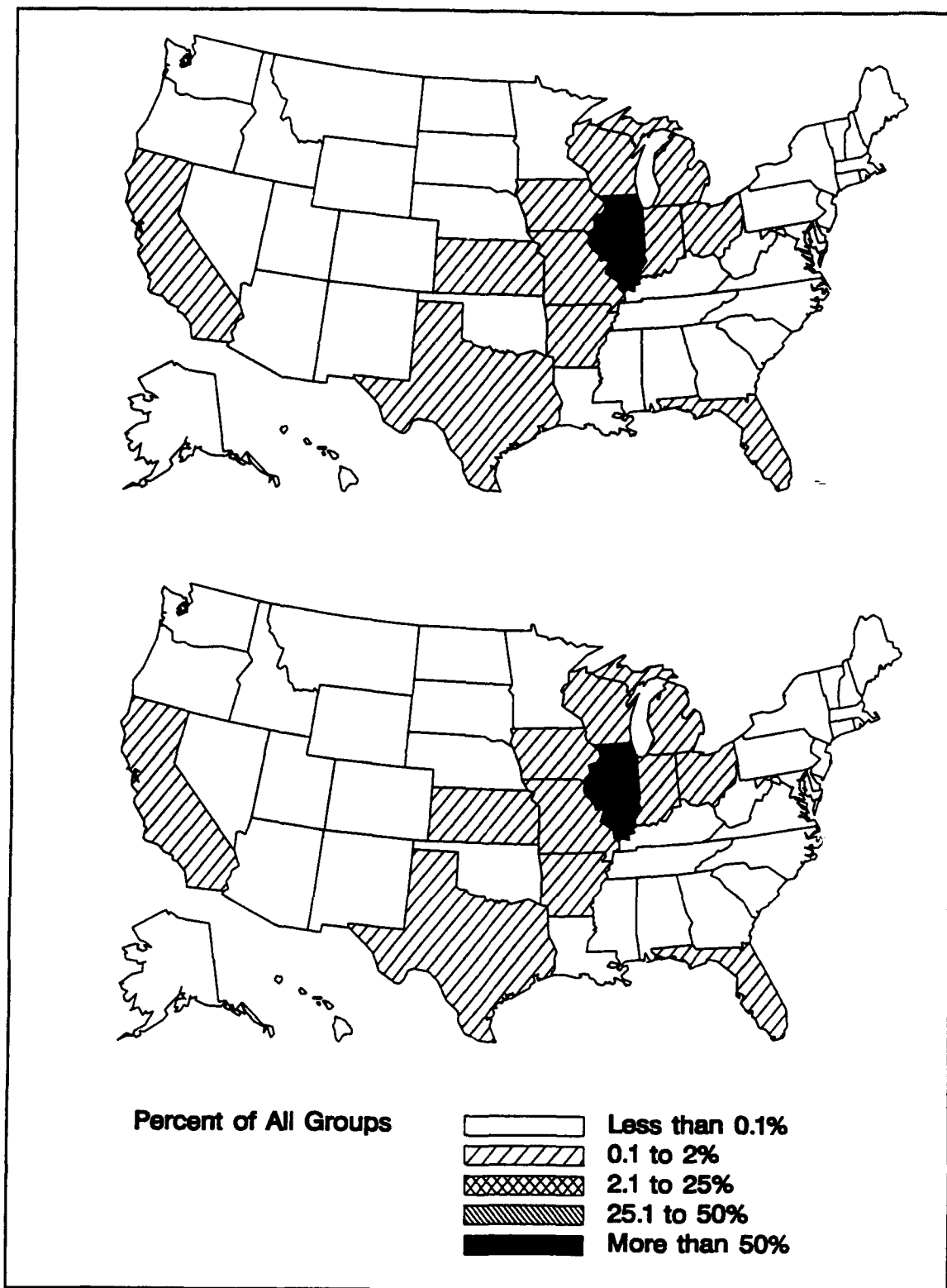


Figure 21. Lake Shelbyville, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

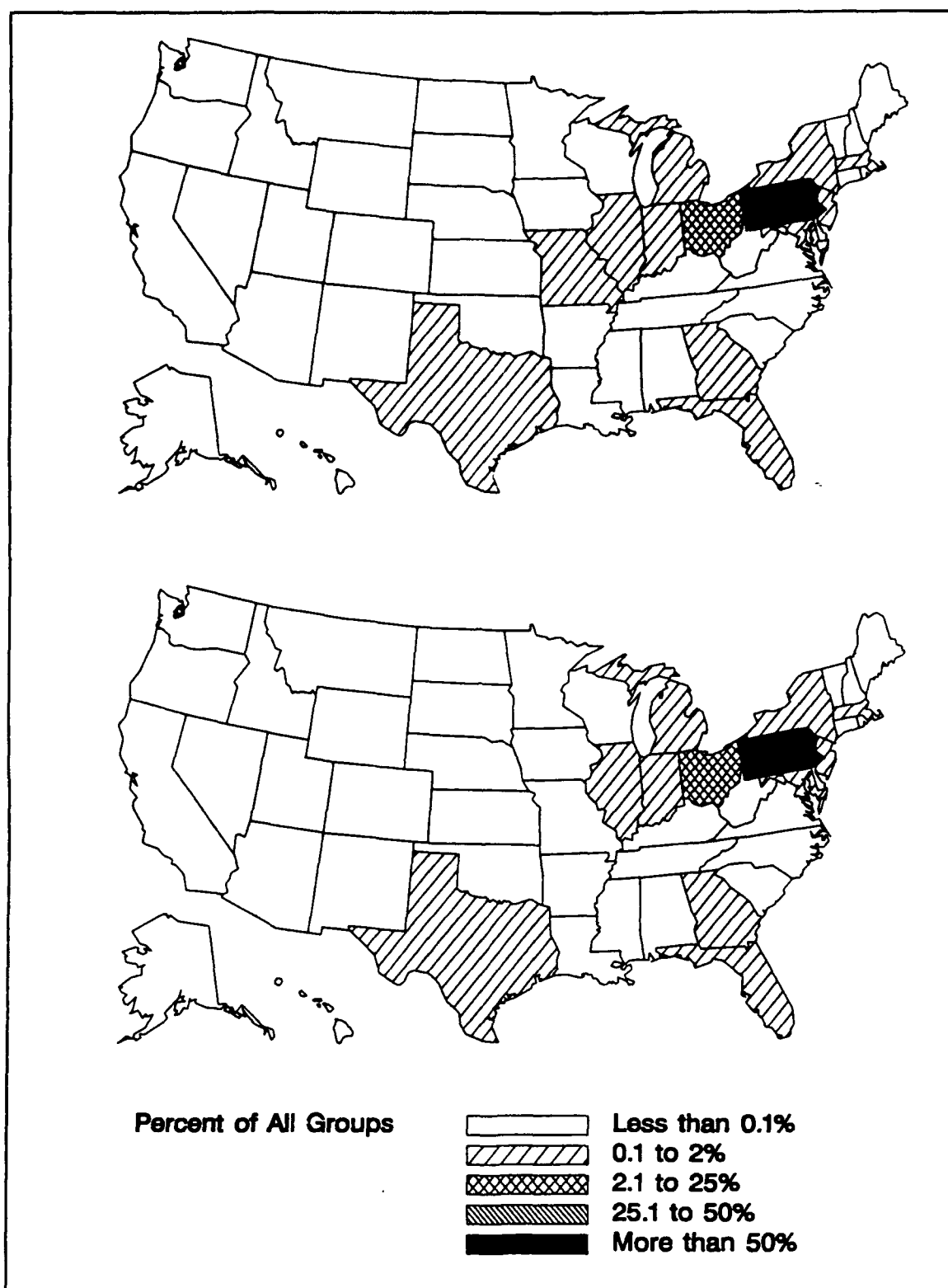


Figure 22. Shenango River Lake, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

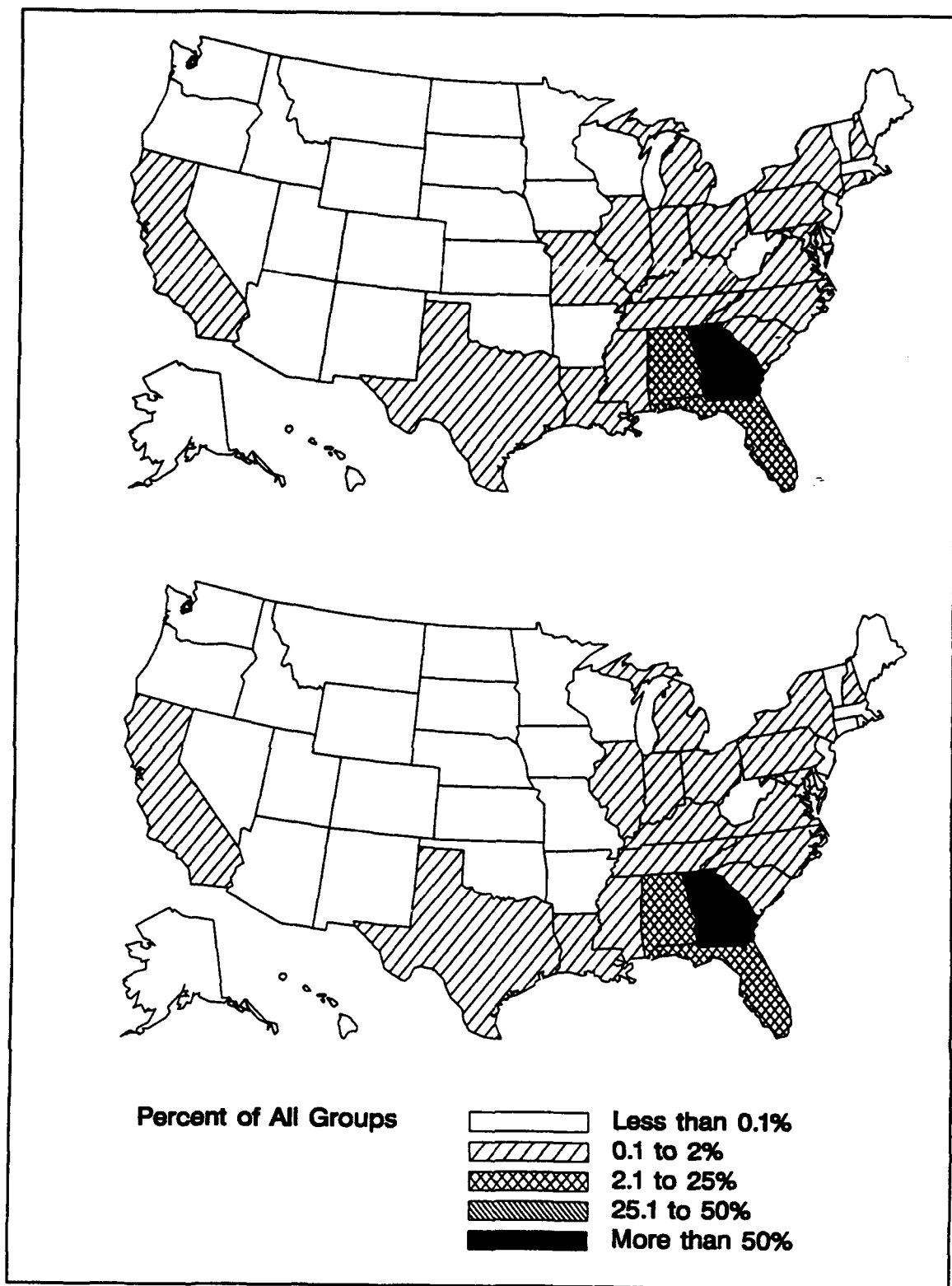


Figure 23. West Point Lake, 1991, percent of camping parties by state (top) and percent for which this campground was their primary destination by state (bottom)

**Table B31**  
**Lake Shelbyville—Forest Wood, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 85.37	2 91.46	3 96.34	4 96.34	5 93.90	6 84.15
7 34.15	8 42.68	9 52.44	10 51.22	11 57.32	12 78.05	13 80.49
14 45.12	15 51.22	16 60.98	17 69.51	18 70.73	19 90.24	20 91.46
21 36.59	22 34.15	23 39.02	24 40.24	25 58.54	26 96.34	27 96.34
28 37.80	29 39.02	30 43.90	31 50.00			

Occupancy Rate for Month 64.4  
 Occupancy Rate for Weekend During Month 79.0  
 Occupancy Rate for Weekday During Month 58.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 82 campsites).

**Figure 24. Site occupancy for 82 campsites at Lake Shelbyville, Forest Wood, July 1991**



# **Appendix A**

## **1991 CRS Data Summaries for Individual Recreation Areas**

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**The Contents of Tables A1-A8 Are Summarized Below**

<b>Project</b>	<b>Area</b>	<b>NRMS Area No.</b>	<b>Table</b>
<b>Barkley</b>	Eureka	104	<b>A1</b>
	Canal	105	
	Boyd's Landing	108	
	Hurricane Creek	124	
	Devil's Elbow	134	
	Bumpus Mills	145	
<b>Hartwell</b>	Watsadlers	005	<b>A2</b>
	Georgia River	006	
	Crescent	007	
	Springfield	011	
	Milltown	027	
	Paynes Creek	038	
	Oconee Point	066	
	Twin Lake	068	
	Coneross Park	070	
<b>Milford</b>	Curtis Creek	003	<b>A3</b>
	Fannum Creek	004	
	Rolling Hills	008	
	School Creek	009	
	Timber Creek	010	
<b>Oahe</b>	Downstream North	002	<b>A4</b>
	Indian Creek	023	
	Indian Memorial	024	
<b>Ouachita</b>	Denby Point	011	<b>A5</b>
	Crystal Springs	014	
	Brady Mountain	015	
<b>Shelbyville</b>	Opossum Creek	001	<b>A6</b>
	Coon Creek	002	
	Lone Point	003	
	Lithia Springs	016	
	Forest Wood	018	
	Whitley Creek	019	
<b>Shenango</b>	Shenango Rec. Area	002	<b>A7</b>
	Mercer Rec. Area	004	
<b>West Point</b>	R. Shaefer Heard	001	<b>A8</b>
	Holiday Park	031	
	State Line Park	036	
	Amity Park	040	
	White Tail Ridge	045	

**Table A1**  
**Lake Barkley 1991 CRS Data**

	Boyds Landing	Bumpus Mills	Canal	Devil's Elbow	Eureka	Hurricane Creek	Total
<b>Summary Statistics</b>							
Total Permits <sup>1</sup>	221	437	2,560	265	350	954	4,787
Total Groups <sup>1</sup>	199	408	2,401	250	350	932	4,540
Recreation Days <sup>1,2</sup>	1,666	2,545	24,296	1,400	2,820	7,598	40,325
Nights Spent	2.6	2.2	3.7	1.9	2.7	3.0	3.2
Party Size	3.2	2.8	2.7	3.0	3.1	2.8	2.8
Occupancy Rate <sup>3</sup>							
Total	27.5	19.1	57.4	20.0	33.5	34.3	31.9
Weekend	43.6	34.8	72.7	34.3	47.8	48.3	46.9
Weekdays	20.7	12.5	51.0	14.1	27.5	28.4	25.7
Total Fees <sup>1</sup>	\$4,287	\$10,604	\$87,442	\$4,431	\$7,448	\$30,342	\$144,555
Average Fee Paid per Site <sup>4</sup>	\$306	\$321	\$1,054	\$222	\$414	\$595	\$2,911
<b>User Characteristics</b>							
Prior Visits	93.0	63.5	69.3	72.4	84.3	69.7	71.2
Primary Destination	99.5	100.0	66.8	90.4	99.4	86.9	79.2
Golden Age	20.6	14.0	40.4	13.2	28.3	28.3	32.2
Golden Access	4.5	0.5	10.0	1.6	0.3	8.2	7.3
<b>Vehicle Equipment</b>							
Car	36.2	30.6	22.4	41.6	50.0	26.3	27.8
Truck	54.3	52.7	41.8	51.6	62.9	50.5	47.3
Van	18.6	10.0	10.6	15.6	14.3	11.5	11.7
Motor Home	10.1	15.2	21.9	4.0	5.4	23.0	18.7
<b>Camping Equipment</b>							
Tent	55.3	37.0	8.6	70.4	50.3	25.8	23.3
Pop-up Trailer	11.1	8.8	5.1	5.2	6.3	8.8	6.6
Pickup Camper	6.0	10.5	3.2	10.8	9.4	5.4	5.3
Travel Trailer	15.1	17.4	37.2	4.8	32.3	22.1	29.2
<b>Recreational Equipment</b>							
Powerboat	48.2	53.7	20.3	49.2	54.6	48.3	34.5
Sailboat	0.0	0.0	0.4	0.4	3.1	0.0	0.5
<sup>1</sup> These totals are reported as sums (all others are the percent of all users). <sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages. <sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground). <sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.							

**Table A2**  
**Hartwell Lake 1991 CRS Data**

	Coneross Park	Crescent	Georgia River	Mililtown	Oconee Point
<b>Summary Statistics</b>					
Total Permits <sup>1</sup>	1,715	53	15	464	786
Total Groups <sup>1</sup>	1,148	42	11	260	580
Recreation Days <sup>1,2</sup>	19,441	875	113	3,725	5,474
Nights Spent	3.7	2.0	3.1	3.4	2.3
Party Size	4.3	12.7	3.3	4.1	4.0
Occupancy Rate <sup>3</sup>					
Total	34.7	1.6	1.9	14.0	19.6
Weekend	54.8	3.1	3.0	27.6	38.6
Weekdays	26.2	0.9	1.5	8.3	11.7
Total Fees <sup>1</sup>	\$42,490	\$1,979	\$201	\$5,963	\$9,310
Average Fee Paid per Site <sup>4</sup>	\$401	\$44	\$13	\$117	\$148
<b>User Characteristics</b>					
Prior Visits	89.0	59.5	81.8	87.7	74.7
Primary Destination	99.0	97.6	90.9	98.5	97.9
Golden Age	15.3	2.4	9.1	6.9	1.9
Golden Access	4.3	0.0	0.0	0.4	0.3
<b>Vehicle Equipment</b>					
Car	42.4	31.0	45.5	35.8	55.2
Truck	53.7	31.0	54.5	46.2	50.3
Van	15.2	4.8	9.1	17.7	8.3
Motor Home	12.5	0.0	0.0	5.0	3.1
<b>Camping Equipment</b>					
Tent	36.1	52.4	45.5	71.5	75.5
Pop-up Trailer	16.0	2.4	27.3	14.2	8.3
Pickup Camper	3.7	4.8	0.0	2.7	2.9
Travel Trailer	31.3	9.5	9.1	4.6	2.9
<b>Recreational Equipment</b>					
Powerboat	21.5	14.3	18.2	23.1	32.9
Sailboat	3.1	0.0	0.0	1.5	1.0

(Continued)

<sup>1</sup> These totals are reported as sums (all others are the percent of all users).

<sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages.

<sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground).

<sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.

<b>Table A2 (Concluded)</b>					
	<b>Paynes Creek</b>	<b>Springfield</b>	<b>Twin Lake</b>	<b>Watsadlers</b>	<b>Total</b>
<b>Summary Statistics</b>					
Total Permit <sup>1</sup>	733	1,962	3,996	2,469	12,193
Total Groups <sup>1</sup>	506	1,282	2,884	1,732	8,445
Recreation Days <sup>1,2</sup>	7,030	19,774	33,090	17,834	107,356
Nights Spent	3.2	3.7	3.1	3.2	3.3
Party Size	4.2	4.1	3.7	3.2	3.8
Occupancy Rate <sup>3</sup>					
Total	18.2	48.6	48.3	62.7	27.7
Weekend	33.7	76.2	76.0	87.0	44.4
Weekdays	11.8	37.1	36.8	52.3	20.7
Total Fees <sup>1</sup>	\$15,233	\$45,694	\$82,838	\$50,115	\$253,824
Average Fee Paid per Site <sup>4</sup>	\$200	\$578	\$812	\$983	\$3,297
<b>User Characteristics</b>					
Prior Visits	77.7	83.7	82.0	85.8	83.3
Primary Destination	97.2	91.2	93.2	94.9	94.8
Golden Age	5.5	25.7	17.1	37.1	20.1
Golden Access	1.2	7.2	3.0	6.1	4.1
<b>Vehicle Equipment</b>					
Car	38.9	33.0	40.4	40.5	40.3
Truck	59.7	47.7	42.8	55.3	49.2
Van	14.8	9.4	12.0	13.1	12.3
Motor Home	9.1	18.1	17.5	22.2	15.9
<b>Camping Equipment</b>					
Tent	52.2	22.9	37.3	24.3	37.0
Pop-up Trailer	17.6	10.9	12.6	10.3	12.4
Pickup Camper	3.2	2.3	2.5	2.7	2.7
Travel Trailer	20.0	33.4	21.8	38.7	26.3
<b>Recreational Equipment</b>					
Powerboat	40.3	12.9	19.9	25.1	22.3
Sailboat	0.8	0.9	2.8	0.3	1.8

**Table A3**  
**Milford Lake 1991 CRS Data**

	Curtis Creek	Farnum Creek	Rolling Hills	School Creek	Timber Creek	Total
<b>Summary Statistics</b>						
Total Permits <sup>1</sup>	1,226	567	1,413	196	46	3,448
Total Groups <sup>1</sup>	1,135	525	1,117	176	37	2,990
Recreation Days <sup>1,2</sup>	8,351	3,926	8,384	1,346	302	22,309
Nights Spent	2.1	1.9	2.3	2.8	2.6	2.2
Party Size	3.5	4.4	3.3	2.8	3.1	3.5
Occupancy Rate <sup>3</sup>						
Total	23.1	9.4	34.5	9.6	1.0	15.5
Weekend	43.8	18.0	65.4	16.2	2.0	29.1
Weekdays	14.7	6.0	21.6	6.9	0.6	10.0
Total Fees <sup>1</sup>	\$21,979	\$7,607	\$23,661	\$1,704	\$346	\$55,297
Average Fee Paid per Site <sup>4</sup>	\$275	\$96	\$408	\$39	\$4	\$822
<b>User Characteristics</b>						
Prior Visits	77.4	26.7	32.0	51.1	75.7	50.0
Primary Destination	99.1	6.5	91.3	97.2	94.6	79.8
Golden Age	16.0	18.7	22.4	26.7	16.2	19.5
Golden Access	1.2	1.1	1.9	1.7	13.5	1.6
<b>Vehicle Equipment</b>						
Car	27.8	33.5	31.1	17.0	35.1	29.5
Truck	61.1	46.9	52.6	68.2	54.1	55.7
Van	14.6	14.7	18.3	5.7	27.0	15.6
Motor Home	15.6	17.3	17.7	14.8	5.4	16.5
<b>Camping Equipment</b>						
Tent	31.0	26.1	37.7	39.8	51.4	33.4
Pop-up Trailer	5.6	3.8	6.9	2.8	5.4	5.6
Pickup Camper	7.7	8.4	5.3	13.1	10.8	7.3
Travel Trailer	27.0	23.0	30.9	29.0	18.9	27.8
<b>Recreational Equipment</b>						
Powerboat	60.3	35.4	30.3	36.4	27.0	42.9
Sailboat	1.3	0.6	0.7	0.6	2.7	0.9
<sup>1</sup> These totals are reported as sums (all others are the percent of all users). <sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages. <sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground). <sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.						

**Table A4**  
**Lake Oahe 1991 CRS Data**

	Downstream North	Indian Creek	Indian Memorial	Total
<b>Summary Statistics</b>				
Total Permits <sup>1</sup>	2,934	1,761	1,055	5,750
Total Groups <sup>2</sup>	2,178	1,269	778	4,225
Recreation Days <sup>1,2</sup>	15,454	10,198	5,589	31,241
Nights Spent	2.6	2.9	2.5	2.7
Party Size	2.9	2.9	2.9	2.9
Occupancy Rate <sup>3</sup>				
Total	31.1	31.2	24.5	28.9
Weekend	50.4	44.8	37.5	44.2
Weekdays	23.3	25.7	19.3	22.8
Total Fees <sup>1</sup>	\$38,457	\$26,230	\$13,958	\$78,645
Average Fee Paid per Site <sup>4</sup>	\$238	\$232	\$172	\$643
<b>User Characteristics</b>				
Prior Visits	81.6	70.6	64.0	75.1
Primary Destination	84.5	78.2	94.9	84.5
Golden Age	29.9	34.0	31.2	31.4
Golden Access	2.1	1.5	1.5	1.8
<b>Vehicle Equipment</b>				
Car	18.0	14.8	13.8	16.3
Truck	54.8	45.6	55.7	52.2
Van	14.5	10.8	9.6	12.5
Motor Home	24.2	29.8	27.5	26.5
<b>Camping Equipment</b>				
Tent	23.3	20.2	19.2	21.6
Pop-up Trailer	6.8	4.5	6.4	6.1
Pickup Camper	13.3	15.4	14.1	14.1
Travel Trailer	30.6	27.8	26.3	29.0
<b>Recreational Equipment</b>				
Powerboat	42.9	38.6	49.4	42.8
Sailboat	0.1	1.0	0.5	0.4
<sup>1</sup> These totals are reported as sums (all others are the percent of all users). <sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages. <sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground). <sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.				

**Table A5**  
**Lake Ouachita 1991 CRS Data**

	Brady Mountain	Crystal Springs	Denby Point	Total
<b>Summary Statistics</b>				
Total Permits <sup>1</sup>	2,816	2,513	2,177	7,506
Total Groups <sup>2</sup>	1,989	1,850	1,552	5,391
Recreation Days <sup>1,2</sup>	23,762	19,459	20,479	63,700
Nights Spent	3.3	3.3	4.0	3.5
Party Size	3.4	3.3	3.5	3.4
Occupancy Rate <sup>3</sup>				
Total	64.4	57.0	60.8	60.7
Weekend	89.2	83.9	86.6	86.6
Weekdays	54.1	45.9	50.1	50.0
Total Fees <sup>1</sup>	\$55,715	\$47,738	\$45,112	\$148,565
Average Fee Paid per Site <sup>4</sup>	\$753	\$645	\$673	\$2,071
<b>User Characteristics</b>				
Prior Visits	79.2	64.1	87.9	76.5
Primary Destination	89.3	86.8	95.0	90.1
Golden Age	14.3	18.3	30.0	20.2
Golden Access	2.8	4.6	6.8	4.6
<b>Vehicle Equipment</b>				
Car	33.7	28.4	26.2	29.7
Truck	51.7	61.6	61.9	58.0
Van	15.7	14.1	13.7	14.5
Motor Home	13.5	14.6	18.2	15.2
<b>Camping Equipment</b>				
Tent	52.0	41.7	27.7	41.5
Pop-up Trailer	12.0	9.4	8.4	10.0
Pickup Camper	2.6	3.3	4.1	3.3
Travel Trailer	19.6	27.5	40.7	28.4
<b>Recreational Equipment</b>				
Powerboat	28.4	46.5	45.9	39.6
Sailboat	3.7	6.8	10.4	6.7

<sup>1</sup> These totals are reported as sums (all others are the percent of all users).

<sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages.

<sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground).

<sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.



**Table A6**  
**Lake Shelbyville 1991 CRS Data**

	Coon Creek	Forest Wood	Lithia Springs	Lone Point	Opossum Creek	Whitley Creek	Total
<b>Summary Statistics</b>							
Total Permits <sup>1</sup>	6,168	3,515	3,556	989	920	702	15,850
Total Groups <sup>1</sup>	5,018	2,664	2,823	856	791	651	12,803
Recreation Days <sup>1,2</sup>	50,340	24,367	27,945	7,787	6,982	5,176	122,597
Nights Spent	3.0	3.5	2.9	2.8	2.9	1.9	3.0
Party Size	3.4	2.7	3.4	3.4	3.2	4.1	3.3
Occupancy Rate <sup>3</sup>							
Total	49.7	67.5	45.7	21.1	24.2	13.8	37.0
Weekend	80.2	90.6	65.5	39.4	41.3	22.4	56.6
Weekdays	36.9	58.0	37.6	13.6	17.1	9.9	28.9
Total Fees <sup>1</sup>	\$117,675	\$70,060	\$77,746	\$12,924	\$12,106	\$8,030	\$298,541
Average Fee Paid per Site <sup>4</sup>	\$533	\$854	\$632	\$135	\$150	\$96	\$2,399
<b>User Characteristics</b>							
Prior Visits	90.3	97.9	88.1	79.0	92.0	98.2	91.2
Primary Destination	99.0	98.6	98.7	97.0	98.2	99.1	98.7
Golden Age	13.6	39.5	19.0	12.3	15.4	1.7	19.6
Golden Access	2.5	3.3	3.5	1.9	5.4	0.8	2.9
<b>Vehicle Equipment</b>							
Car	34.8	34.8	37.5	32.4	37.9	46.4	36.0
Truck	50.0	52.6	42.7	50.2	41.8	37.3	47.8
Van	21.6	17.8	23.9	19.2	21.6	21.2	21.1
Motor Home	16.0	26.2	18.2	16.2	10.5	4.1	17.7
<b>Camping Equipment</b>							
Tent	42.8	20.2	44.6	46.0	62.5	77.7	41.7
Pop-up Trailer	13.6	10.6	16.5	11.0	5.6	7.5	12.6
Pickup Camper	5.4	4.7	6.1	7.1	4.8	6.0	5.5
Travel Trailer	23.9	38.0	18.0	20.4	14.0	5.8	23.8
<b>Recreational Equipment</b>							
Powerboat	43.2	39.0	40.3	50.2	37.0	43.5	41.8
Sailboat	0.3	0.2	1.1	0.5	0.5	0.6	0.5

<sup>1</sup> These totals are reported as sums (all others are the percent of all users).

<sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages.

<sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground).

<sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.

**Table A7**  
**Shenango River Lake 1991 CRS Data**

	Shenango Rec. Area	Mercer Rec. Area	Total
<b>Summary Statistics</b>			
Total Permits <sup>1</sup>	6,471	140	6,611
Total Groups <sup>2</sup>	4,110	126	4,236
Recreation Days <sup>1,2</sup>	54,961	1,432	56,393
Nights Spent	3.5	3.1	3.5
Party Size	4.0	3.4	4.0
Occupancy Rate <sup>3</sup>			
Total	53.9	21.4	37.6
Weekend	47.1	32.6	39.8
Weekdays	39.2	16.8	28.0
Total Fees <sup>1</sup>	\$123,993	\$1,515	\$125,508
Average Fee Paid per Site <sup>4</sup>	\$380	\$76	\$456
<b>User Characteristics</b>			
Prior Visits	92.8	100.0	93.0
Primary Destination	97.8	99.2	97.8
Golden Age	17.2	8.7	16.9
Golden Access	4.0	4.0	4.0
<b>Vehicle Equipment</b>			
Car	55.7	47.6	55.5
Truck	44.4	27.8	43.9
Van	18.1	15.9	18.0
Motor Home	14.0	15.1	14.0
<b>Camping Equipment</b>			
Tent	39.2	47.6	39.5
Pop-up Trailer	11.0	6.3	10.9
Pickup Camper	4.8	7.1	4.9
Travel Trailer	20.8	18.3	20.8
<b>Recreational Equipment</b>			
Powerboat	33.6	34.1	33.7
Sailboat	85.0	12.7	82.9

<sup>1</sup> These totals are reported as sums (all others are the percent of all users).

<sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages.

<sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground).

<sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.

**Table A8**  
**West Point Lake 1991 CRS Data**

	Amity Park	Holiday Park	R. Shaefer Heard	State Line Park	White Tail Ridge	Total
<b>Summary Statistics</b>						
Total Permits <sup>1</sup>	1,002	2,672	2,141	716	1,153	7,684
Total Groups <sup>1</sup>	802	2,052	1,794	606	1,047	6,301
Recreation Days <sup>1,2</sup>	9,054	24,298	17,890	5,955	10,707	67,904
Nights Spent	3.1	3.3	2.8	2.6	2.9	3.0
Party Size	3.8	3.7	3.5	3.8	3.5	3.6
Occupancy Rate <sup>3</sup>						
Total	20.4	32.9	32.5	11.4	33.7	26.2
Weekend	32.2	50.9	51.1	22.9	54.5	42.3
Weekdays	15.5	25.4	24.8	6.5	24.9	19.4
Total Fees <sup>1</sup>	\$20,204	\$57,143	\$39,805	\$13,505	\$28,520	\$159,177
Average Fee Paid per Site <sup>4</sup>	\$217	\$394	\$463	\$110	\$492	\$1,676
<b>User Characteristics</b>						
Prior Visits	74.1	94.6	84.1	78.2	89.9	86.6
Primary Destination	94.3	96.8	97.4	97.5	96.6	96.7
Golden Age	21.2	20.4	30.9	9.9	15.4	21.7
Golden Access	3.1	2.7	9.7	2.0	7.7	5.5
<b>Vehicle Equipment</b>						
Car	39.2	28.0	36.9	37.6	35.1	34.0
Truck	61.8	64.3	53.1	67.3	68.6	61.8
Van	16.7	13.3	12.0	13.4	12.1	13.2
Motor Home	21.3	26.1	27.6	13.0	28.6	25.1
<b>Camping Equipment</b>						
Tent	34.5	29.8	27.1	58.4	27.7	32.1
Pop-up Trailer	9.4	4.8	7.9	4.5	13.8	7.7
Pickup Camper	5.2	4.7	4.3	3.5	3.3	4.3
Travel Trailer	25.1	22.5	33.3	18.0	29.8	26.7
<b>Recreational Equipment</b>						
Powerboat	40.5	57.4	27.0	48.7	41.7	43.2
Sailboat	6.9	4.1	1.5	6.9	1.1	3.5

<sup>1</sup> These totals are reported as sums (all others are the percent of all users).

<sup>2</sup> Recreation area averages were weighted by the total number of permits for each area to compute project averages.

<sup>3</sup> Occupancy Rate was calculated by the number of nights paid divided by (the number of calendar nights multiplied by the number of sites at each campground).

<sup>4</sup> Average fee paid per site was the total fee collected at each area divided by the number of sites at that area.

# **Appendix B**

## **1991 CRS Data Analysis of Occupancy Rates (July)**

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**The Contents of Tables B1-B39 Are Summarized Below**

<b>Project</b>	<b>Area</b>	<b>NRMS Area No.</b>	<b>Tables</b>
<b>Barkley</b>	Eureka	104	B1
	Canal	105	B2
	Boyd's Landing	108	B3
	Hurricane Creek	124	B4
	Devil's Elbow	134	B5
	Bumpus Mills	145	B6
<b>Hartwell</b>	Watsadlers	005	B7
	Georgia River	006	B8
	Crescent	007	B9
	Springfield	011	B10
	Miltohn	027	B11
	Paynes Creek	038	B12
	Oconee Point	066	B13
	Twin Lake	068	B14
	Coneross Park	070	B15
<b>Milford</b>	Curtis Creek	003	B16
	Farnum Creek	004	B17
	Rolling Hills	008	B18
	School Creek	009	B19
	Timber Creek	010	B20
<b>Oahe</b>	Downstream North	002	B21
	Indian Creek	023	B22
	Indian Memorial	024	B23
<b>Quachita</b>	Denby Point	011	B24
	Crystal Springs	014	B25
	Brady Mountain	015	B26
<b>Shelbyville</b>	Opossum Creek	001	B27
	Coon Creek	002	B28
	Lone Point	003	B29
	Lithia Springs	016	B30
	Forest Wood	018	B31
	Whitley Creek	019	B32
<b>Shenango</b>	Shenango Rec. Area	002	B33
	Mercer Rec. Area	004	B34
<b>West Point</b>	R. Shaefer Heard	001	B35
	Holiday Park	031	B36
	State Line Park	036	B37
	Amity Park	040	B38
	White Tail Ridge	045	B39

**Table B1**  
**Lake Barkley—Eureka, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 52.38	2 47.62	3 71.43	4 71.43	5 61.90	6 47.62
7 38.10	8 42.86	9 42.86	10 42.86	11 42.86	12 61.90	13 61.90
14 23.81	15 28.57	16 42.86	17 23.81	18 19.05	19 28.57	20 23.81
21 14.29	22 4.76	23 9.52	24 14.29	25 19.05	26 33.33	27 23.81
28 19.05	29 33.33	30 38.10	31 23.81			

Occupancy Rate for Month 41.8  
Occupancy Rate for Weekend During Month 44.4  
Occupancy Rate for Weekday During Month 40.7

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 18 campsites).

**Table B2**  
**Lake Barkley—Canal, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 60.00	2 64.71	3 80.00	4 87.06	5 188.24	6 71.76
7 38.82	8 54.12	9 51.76	10 49.41	11 48.24	12 62.35	13 72.94
14 50.59	15 49.41	16 55.29	17 50.59	18 55.29	19 75.29	20 75.29
21 47.06	22 48.24	23 49.41	24 60.00	25 62.35	26 78.82	27 77.65
28 38.82	29 44.71	30 47.06	31 40.00			

Occupancy Rate for Month 60.6  
Occupancy Rate for Weekend During Month 68.5  
Occupancy Rate for Weekday During Month 57.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 83 campsites).

**Table B3**  
**Lake Barkley—Boyds Landing, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 42.86	2 42.86	3 42.86	4 71.43	5 57.14	6 50.00
7 7.14	8 14.29	9 14.29	10 7.14	11	12 14.29	13 35.71
14 28.57	15 21.43	16 21.43	17 21.43	18 28.57	19 28.57	20 28.57
21 7.14	22 7.14	23 7.14	24 7.14	25 14.29	26 28.57	27 42.86
28 21.43	29 14.29	30 7.14	31			

Occupancy Rate for Month 23.7  
Occupancy Rate for Weekend During Month 31.8  
Occupancy Rate for Weekday During Month 20.5

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 14 campsites).

**Table B4**  
**Lake Barkley—Hurricane Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 23.53	2 31.37	3 58.82	4 84.31	5 90.20	6 80.39
7 27.45	8 23.53	9 23.53	10 19.61	11 17.65	12 35.29	13 35.29
14 23.53	15 31.37	16 29.41	17 43.14	18 41.18	19 56.86	20 33.33
21 11.76	22 15.69	23 23.53	24 15.69	25 17.65	26 31.37	27 39.22
28 19.61	29 17.65	30 17.65	31 19.61			

Occupancy Rate for Month 33.5  
Occupancy Rate for Weekend During Month 44.7  
Occupancy Rate for Weekday During Month 29.0

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 51 campsites).

**Table B5**  
**Lake Barkley—Devil's Elbow, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 21.05	2 5.26	3 36.84	4 73.68	5 89.47	6 94.74
7 5.26	8 5.26	9 5.26	10 5.26	11	12 21.05	13 31.58
14 10.53	15 10.53	16 10.53	17 5.26	18 5.26	19 10.53	20 21.05
21 15.79	22 15.79	23 10.53	24	25 10.53	26 10.53	27 21.05
28 5.26	29 10.53	30 5.26	31			

Occupancy Rate for Month 17.6  
 Occupancy Rate for Weekend During Month 31.7  
 Occupancy Rate for Weekday During Month 11.8

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 20 campsites).

**Table B6**  
**Lake Barkley—Bumpus Mills, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 15.15	2 18.18	3 27.27	4 42.42	5 72.73	6 60.61
7 3.03	8 15.15	9 21.21	10 18.18	11 6.06	12 6.06	13 9.09
14 3.03	15 3.03	16	17	18	19 15.15	20 15.15
21 3.03	22	23	24 3.03	25	26 15.15	27 18.18
28	29 3.03	30 3.03	31 9.09			

Occupancy Rate for Month 13.1  
 Occupancy Rate for Weekend During Month 23.6  
 Occupancy Rate for Weekday During Month 8.8

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 33 campsites).



**Table B7**  
**Hartwell Lake—Watsadlers, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 92.16	2 94.12	3 98.04	4 88.24	5 94.12	6 74.51
7 31.37	8 31.37	9 47.06	10 64.71	11 72.55	12 92.16	13 76.47
14 41.18	15 31.37	16 52.94	17 58.82	18 82.35	19 100.00	20 90.20
21 29.41	22 33.33	23 31.37	24 29.41	25 50.98	26 66.67	27 74.51
28 21.57	29 19.61	30 29.41	31 37.25			

Occupancy Rate for Month 59.3  
 Occupancy Rate for Weekend During Month 74.3  
 Occupancy Rate for Weekday During Month 53.1

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 51 campsites).

**Table B8**  
**Hartwell Lake—Georgia River, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 13.33	2	3	4	5	6 6.67
7	8 6.67	9 6.67	10	11	12	13
14	15	16	17	18 6.67	19 13.33	20 6.67
21	22	23	24	25	26	27
28	29	30	31			

Occupancy Rate for Month 1.9  
 Occupancy Rate for Weekend During Month 3.0  
 Occupancy Rate for Weekday During Month 1.5

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 15 campsites).

**Table B9**  
**Hartwell Lake—Crescent, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 4.44	2 4.44	3 4.44	4 2.22	5 4.44	6 4.44
7 2.22	8 2.22	9	10	11	12	13 2.22
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Occupancy Rate for Month 1.0  
Occupancy Rate for Weekend During Month 1.2  
Occupancy Rate for Weekday During Month 0.9

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 45 campsites).

**Table B10**  
**Hartwell Lake—Springfield, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 97.47	2 97.47	3 98.73	4 100.00	5 91.14	6 69.62
7 26.58	8 18.99	9 25.32	10 31.65	11 48.10	12 67.09	13 70.89
14 24.05	15 26.58	16 24.05	17 30.38	18 45.57	19 78.48	20 77.22
21 22.78	22 18.99	23 20.25	24 21.52	25 36.71	26 56.96	27 59.49
28 12.66	29 10.13	30 13.92	31 20.25			

Occupancy Rate for Month 46.6  
Occupancy Rate for Weekend During Month 63.4  
Occupancy Rate for Weekday During Month 39.6

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 79 campsites).

**Table B11**  
**Hartwell Lake—Milktown, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 25.49	2 50.98	3 70.59	4 70.59	5 58.82	6 43.14
7 1.96	8 1.96	9 1.96	10 1.96	11 1.96	12 9.80	13 13.73
14	15	16	17	18 1.96	19 11.76	20 13.73
21	22 1.96	23 3.92	24 3.92	25 1.96	26 13.73	27 35.29
28 7.84	29 1.96	30	31			

Occupancy Rate for Month 14.6  
 Occupancy Rate for Weekend During Month 22.2  
 Occupancy Rate for Weekday During Month 11.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 51 campsites).

**Table B12**  
**Hartwell Lake—Paynes Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 43.42	2 46.05	3 48.68	4 51.32	5 48.68	6 34.21
7 7.89	8 6.58	9 6.58	10 11.84	11 21.05	12 42.11	13 39.47
14 9.21	15 9.21	16 9.21	17 7.89	18 10.53	19 36.84	20 40.79
21 6.58	22 9.21	23 11.84	24 9.21	25 14.47	26 22.37	27 23.68
28 6.58	29 3.95	30 3.95	31 5.26			

Occupancy Rate for Month 20.9  
 Occupancy Rate for Weekend During Month 32.0  
 Occupancy Rate for Weekday During Month 16.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 76 campsites).

**Table B13**  
**Hartwell Lake—Oconee, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 63.49	2 74.60	3 82.54	4 90.48	5 85.71	6 73.02
7 9.52	8 1.59	9 4.76	10 6.35	11 7.94	12 23.63	13 14.29
14 6.35	15 1.59	16 1.59	17	18 1.59	19 11.11	20 19.05
21	22	23 1.59	24 3.17	25 1.59	26 7.94	27 11.11
28 3.17	29 1.59	30 1.59	31 1.59			

Occupancy Rate for Month 19.7  
 Occupancy Rate for Weekend During Month 27.0  
 Occupancy Rate for Weekday During Month 16.7

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 63 campsites).

**Table B14**  
**Hartwell Lake—Twin Lake, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 95.10	2 100.98	3 103.92	4 100.98	5 95.10	6 73.53
7 30.39	8 25.49	9 32.35	10 42.16	11 54.90	12 78.43	13 86.27
14 26.47	15 21.57	16 20.59	17 24.51	18 42.16	19 77.45	20 80.39
21 25.49	22 23.53	23 22.55	24 22.55	25 42.16	26 59.80	27 64.71
28 18.63	29 14.71	30 19.61	31 21.57			

Occupancy Rate for Month 49.9  
 Occupancy Rate for Weekend During Month 68.4  
 Occupancy Rate for Weekday During Month 42.2

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 102 campsites).

**Table B15****Hartwell Lake—Coneross Park, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 83.02	2 84.91	3 95.29	4 95.28	5 89.62	6 60.38
7 9.43	8 13.21	9 14.15	10 15.09	11 22.64	12 44.34	13 45.28
14 15.09	15 15.09	16 12.26	17 12.26	18 25.47	19 46.23	20 45.28
21 15.09	22 13.21	23 14.15	24 16.04	25 28.30	26 42.45	27 39.62
28 12.26	29 16.04	30 15.09	31 14.15			

Occupancy Rate for Month 34.5  
 Occupancy Rate for Weekend During Month 45.9  
 Occupancy Rate for Weekday During Month 29.8

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 106 campsites).

**Table B16****Millford Lake—Curtis Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 25.00	2 43.75	3 90.00	4 110.00	5 101.25	6 70.00
7 11.25	8 8.75	9 13.75	10 11.25	11 13.75	12 37.50	13 32.50
14 6.25	15 6.25	16 7.50	17 8.75	18 10.00	19 25.00	20 27.50
21 11.25	22 13.75	23 16.25	24 13.75	25 12.50	26 32.50	27 52.50
28 11.25	29 11.25	30 7.50	31 10.00			

Occupancy Rate for Month 27.5  
 Occupancy Rate for Weekend During Month 42.1  
 Occupancy Rate for Weekday During Month 21.5

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 80 campsites).

Table B17 Milford Lake—Farnum Creek, Occupancy Rates, <sup>1</sup> July 1991						
S	M	T	W	T	F	S
	1 1.27	2 6.33	3 34.18	4 48.10	5 29.11	6 18.99
7 5.06	8 3.80	9 5.06	10 2.53	11 1.27	12 5.06	13 6.33
14 3.80	15 1.27	16 3.80	17 5.06	18 10.13	19 29.11	20 24.05
21 1.27	22 3.80	23 2.53	24 6.33	25 5.06	26 11.39	27 8.86
28	29 2.53	30	31			
Occupancy Rate for Month				9.4		
Occupancy Rate for Weekend During Month				14.9		
Occupancy Rate for Weekday During Month				7.1		
<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 79 campsites).						

Table B18 Milford Lake—Rolling Hills, Occupancy Rates, <sup>1</sup> July 1991						
S	M	T	W	T	F	S
	1 46.55	2 63.79	3 106.90	4 139.66	5 122.41	6 93.10
7 12.07	8 17.24	9 20.69	10 15.52	11 18.97	12 34.48	13 48.28
14 8.62	15 6.90	16 10.34	17 8.62	18 13.79	19 34.48	20 44.83
21 12.07	22 12.07	23 3.45	24 6.90	25 15.52	26 65.52	27 77.59
28 17.24	29 20.69	30 13.79	31 18.97			
Occupancy Rate for Month				36.5		
Occupancy Rate for Weekend During Month				57.9		
Occupancy Rate for Weekday During Month				27.7		
<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 58 campsites).						

**Table B19**  
**Milford Lake—School Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 6.82	2 27.27	3 59.09	4 59.09	5 52.27	6 31.82
7 2.27	8	9	10	11	12 4.55	13 4.55
14	15	16 2.27	17 2.27	18 2.27	19 15.91	20 15.91
21 6.82	22 4.55	23	24 2.27	25 4.55	26 4.55	27 4.55
28	29	30	31			

Occupancy Rate for Month 10.1  
 Occupancy Rate for Weekend During Month 14.9  
 Occupancy Rate for Weekday During Month 8.2

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 44 campsites).

**Table B20**  
**Milford Lake—Timber Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1	2 3.49	3 5.81	4 8.14	5 5.81	6 3.49
7	8	9	10	11 4.65	12 5.81	13 5.81
14	15	16	17	18	19	20
21	22	23	24	25 1.16	26 2.33	27 2.33
28	29	30	31			

Occupancy Rate for Month 1.6  
 Occupancy Rate for Weekend During Month 2.8  
 Occupancy Rate for Weekday During Month 1.1

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 86 campsites).

**Table B21**  
**Lake Oahe—Downstream North, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 36.02	2 55.28	3 79.50	4 93.17	5 91.93	6 88.20
7 28.57	8 30.43	9 31.06	10 24.22	11 29.19	12 42.86	13 57.76
14 27.33	15 23.60	16 29.19	17 27.95	18 26.09	19 43.48	20 52.80
21 25.47	22 29.19	23 21.74	24 22.98	25 26.71	26 45.34	27 57.76
28 24.22	29 24.84	30 20.50	31 17.39			

Occupancy Rate for Month 39.8  
Occupancy Rate for Weekend During Month 53.4  
Occupancy Rate for Weekday During Month 34.3

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 161 campsites).

**Table B22**  
**Lake Oahe—Indian Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 39.82	2 59.29	3 76.11	4 76.99	5 70.80	6 51.33
7 22.12	8 13.27	9 11.50	10 18.58	11 28.32	12 37.17	13 39.82
14 18.58	15 20.35	16 23.89	17 21.24	18 23.01	19 27.43	20 31.86
21 14.16	22 11.50	23 14.16	24 14.16	25 16.81	26 30.97	27 29.20
28 15.93	29 17.70	30 14.16	31 15.04			

Occupancy Rate for Month 29.2  
Occupancy Rate for Weekend During Month 35.4  
Occupancy Rate for Weekday During Month 26.7

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 113 campsites).



**Table B23**  
**Lake Oahe—Indian Memorial, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 22.22	2 22.22	3 35.80	4 41.98	5 33.33	6 32.10
7 16.05	8 17.28	9 22.22	10 18.52	11 20.99	12 29.63	13 20.99
14 12.35	15 6.17	16 4.94	17 2.47	18 8.64	19 9.88	20 13.58
21 7.41	22 6.17	23 3.70	24 6.17	25 3.70	26 13.58	27 23.46
28 7.41	29 12.35	30 11.11	31 11.11			

Occupancy Rate for Month 16.1  
 Occupancy Rate for Weekend During Month 19.6  
 Occupancy Rate for Weekday During Month 14.6

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 81 campsites).

**Table B24**  
**Lake Ouachita—Denby Point, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 5.97	2 5.97	3 4.48	4 4.48	5 2.99	6 2.99
7	8	9	10 2.99	11 17.91	12 47.76	13 61.19
14 44.78	15 61.19	16 61.19	17 64.18	18 70.15	19 98.51	20 92.54
21 61.19	22 58.21	23 62.69	24 61.19	25 62.69	26 85.07	27 79.10
28 46.27	29 41.79	30 47.76	31 55.22			

Occupancy Rate for Month 42.3  
 Occupancy Rate for Weekend During Month 52.2  
 Occupancy Rate for Weekday During Month 38.2

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 67 campsites).

**Table B25**  
**Lake Ouachita—Crystal Springs, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 5.41	2 4.05	3 4.05	4 4.05	5 2.70	6 2.70
7	8	9	10	11	12 25.68	13 43.24
14 41.89	15 45.95	16 44.59	17 41.89	18 45.95	19 78.38	20 97.30
21 44.59	22 35.14	23 35.14	24 29.73	25 40.54	26 82.43	27 72.97
28 29.73	29 39.19	30 47.30	31 55.41			

Occupancy Rate for Month 32.3  
 Occupancy Rate for Weekend During Month 45.1  
 Occupancy Rate for Weekday During Month 27.0

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 74 campsites).

**Table B26**  
**Lake Ouachita—Brady Mountain, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 6.76	2 6.76	3 5.41	4 4.05	5 1.35	6 1.35
7 1.35	8 1.35	9 1.35	10 1.35	11 1.35	12 2.70	13 8.11
14 51.35	15 79.73	16 79.73	17 85.14	18 91.89	19 93.24	20 91.89
21 72.97	22 72.97	23 71.62	24 71.62	25 83.78	26 100.00	27 98.65
28 62.16	29 62.16	30 62.16	31 51.35			

Occupancy Rate for Month 46.0  
 Occupancy Rate for Weekend During Month 44.1  
 Occupancy Rate for Weekday During Month 46.7

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 74 campsites).

**Table B27**  
**Lake Shelbyville—Opossum Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 45.68	2 43.21	3 69.14	4 76.54	5 72.84	6 54.32
7 11.11	8 9.88	9 9.88	10 18.52	11 25.93	12 32.10	13 39.51
14 13.58	15 16.05	16 16.05	17 17.28	18 16.05	19 30.86	20 37.04
21 14.81	22 18.52	23 16.05	24 16.05	25 20.99	26 45.68	27 54.32
28 14.81	29 11.11	30 8.64	31 8.64			

Occupancy Rate for Month 28.6  
 Occupancy Rate for Weekend During Month 40.7  
 Occupancy Rate for Weekday During Month 23.6

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 81 campsites).

**Table B28**  
**Lake Shelbyville—Coon Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 54.30	2 76.92	3 88.69	4 87.78	5 84.62	6 73.30
7 27.60	8 38.91	9 34.84	10 35.75	11 50.23	12 83.71	13 90.05
14 35.75	15 33.48	16 34.84	17 35.29	18 49.32	19 75.11	20 76.92
21 34.39	22 37.56	23 43.44	24 48.42	25 54.30	26 87.33	27 79.64
28 37.10	29 34.84	30 33.03	31 35.75			

Occupancy Rate for Month 54.6  
 Occupancy Rate for Weekend During Month 72.3  
 Occupancy Rate for Weekday During Month 47.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 221 campsites).

**Table B29**  
**Lake Shelbyville—Lone Point, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 13.54	2 14.58	3 52.08	4 61.46	5 66.67	6 51.04
7 14.58	8 11.46	9 11.46	10 9.38	11 15.63	12 22.92	13 34.38
14 7.29	15 4.17	16 5.21	17 9.38	18 15.63	19 38.54	20 40.63
21 10.42	22 11.46	23 12.50	24 15.63	25 17.71	26 35.42	27 48.96
28 11.46	29 8.33	30 9.38	31 9.38			

Occupancy Rate for Month 22.3  
 Occupancy Rate for Weekend During Month 37.6  
 Occupancy Rate for Weekday During Month 16.0

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 96 campsites).

**Table B30**  
**Lake Shelbyville—Lithia Springs, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 72.36	2 79.67	3 83.74	4 80.49	5 81.30	6 65.04
7 21.14	8 30.89	9 36.59	10 43.90	11 53.66	12 85.37	13 85.37
14 44.72	15 44.72	16 47.97	17 41.46	18 46.34	19 73.17	20 65.04
21 2.44	22 0.81	23 0.81	24 0.81	25 1.63	26 3.25	27 3.25
28 13.82	29 22.76	30 33.33	31 40.65			

Occupancy Rate for Month 42.2  
 Occupancy Rate for Weekend During Month 51.3  
 Occupancy Rate for Weekday During Month 38.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 123 campsites).

**Table B31****Lake Shelbyville—Forest Wood, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 85.37	2 91.46	3 96.34	4 96.34	5 93.90	6 84.15
7 34.15	8 42.68	9 52.44	10 51.22	11 57.32	12 78.05	13 80.49
14 45.12	15 51.22	16 60.98	17 69.51	18 70.73	19 90.24	20 91.46
21 36.59	22 34.15	23 39.02	24 40.24	25 58.54	26 96.34	27 96.34
28 37.80	29 39.02	30 43.90	31 50.00			

Occupancy Rate for Month 64.4  
 Occupancy Rate for Weekend During Month 79.0  
 Occupancy Rate for Weekday During Month 58.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 82 campsites).

**Table B32****Lake Shelbyville—Whitley Creek, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 16.67	2 16.67	3 26.19	4 44.05	5 57.14	6 50.00
7 4.76	8 2.38	9 2.38	10 4.76	11 3.57	12 19.05	13 28.57
14 4.76	15 9.52	16 11.90	17 13.10	18 14.29	19 27.38	20 34.52
21 7.14	22 3.57	23 3.57	24 4.76	25 10.71	26 30.95	27 35.71
28 1.19	29 1.19	30 3.57	31 4.76			

Occupancy Rate for Month 16.1  
 Occupancy Rate for Weekend During Month 31.5  
 Occupancy Rate for Weekday During Month 9.8

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 84 campsites).

**Table B33****Shenango Lake—Shenango Rec. Area, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 50.61	2 62.27	3 74.23	4 76.69	5 74.85	6 72.39
7 24.85	8 22.70	9 28.83	10 35.28	11 48.16	12 68.10	13 68.40
14 35.89	15 38.96	16 39.88	17 40.49	18 51.23	19 68.71	20 69.02
21 34.36	22 32.52	23 32.52	24 38.96	25 49.69	26 68.10	27 66.56
28 29.14	29 25.77	30 27.61	31 32.21			

Occupancy Rate for Month 48.0  
 Occupancy Rate for Weekend During Month 61.8  
 Occupancy Rate for Weekday During Month 42.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 326 campsites).

**Table B34****Shenango Lake—Mercer Rec. Area, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 40.00	2 65.00	3 80.00	4 60.00	5 55.00	6 50.00
7 20.00	8 15.00	9	10 15.00	11 15.00	12 10.00	13 20.00
14 20.00	15 5.00	16 5.00	17 10.00	18 25.00	19 55.00	20 50.00
21 15.00	22 5.00	23	24	25 5.00	26 70.00	27 90.00
28 15.00	29 30.00	30 40.00	31 45.00			

Occupancy Rate for Month 30.0  
 Occupancy Rate for Weekend During Month 44.4  
 Occupancy Rate for Weekday During Month 24.1

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 20 campsites).

**Table B35**  
**West Point Lake—R. Shaefer Heard, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 63.95	2 75.58	3 81.40	4 81.40	5 76.74	6 58.14
7 16.28	8 17.44	9 17.44	10 17.44	11 19.77	12 32.56	13 46.51
14 15.12	15 18.60	16 15.12	17 10.47	18 15.12	19 38.37	20 40.70
21 22.09	22 20.93	23 16.28	24 13.95	25 19.77	26 45.35	27 67.44
28 18.60	29 17.44	30 13.95	31 12.79			

Occupancy Rate for Month 33.1  
 Occupancy Rate for Weekend During Month 45.1  
 Occupancy Rate for Weekday During Month 28.2

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 86 campsites).

**Table B36**  
**West Point Lake—Holiday Park, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 51.03	2 57.24	3 81.38	4 82.07	5 82.76	6 64.14
7 17.24	8 18.62	9 17.93	10 20.00	11 17.24	12 32.41	13 42.07
14 16.55	15 17.24	16 19.31	17 17.93	18 26.21	19 44.83	20 47.59
21 22.76	22 25.52	23 24.14	24 20.69	25 22.76	26 33.79	27 37.93
28 10.34	29 11.72	30 13.10	31 13.10			

Occupancy Rate for Month 32.6  
 Occupancy Rate for Weekend During Month 42.8  
 Occupancy Rate for Weekday During Month 28.4

<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 145 campsites).

Table B37 West Point Lake—State Line Park, Occupancy Rates, <sup>1</sup> July 1991						
S	M	T	W	T	F	S
	1 18.70	2 21.95	3 35.77	4 51.22	5 46.34	6 39.84
7 6.50	8 7.32	9 5.69	10 7.32	11 13.82	12 24.39	13 31.71
14 4.88	15 3.25	16 3.25	17 0.81	18 0.81	19 13.82	20 17.07
21 4.07	22 3.25	23 3.25	24 2.44	25 3.25	26 10.57	27 10.57
28 2.44	29 0.81	30 1.63	31 1.63			
Occupancy Rate for Month				12.9		
Occupancy Rate for Weekend During Month				21.6		
Occupancy Rate for Weekday During Month				9.3		
<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 123 campsites).						

Table B38 West Point Lake—Amity Park, Occupancy Rates, <sup>1</sup> July 1991						
S	M	T	W	T	F	S
	1 35.48	2 41.94	3 60.22	4 70.97	5 66.67	6 47.31
7 10.75	8 16.13	9 15.05	10 12.90	11 10.75	12 20.43	13 23.66
14 7.53	15 7.53	16 7.53	17 7.53	18 11.83	19 26.88	20 27.96
21 10.75	22 10.75	23 12.90	24 17.20	25 16.13	26 27.96	27 25.81
28 13.98	29 16.13	30 16.13	31 7.53			
Occupancy Rate for Month				22.7		
Occupancy Rate for Weekend During Month				29.6		
Occupancy Rate for Weekday During Month				19.9		
<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 93 campsites).						



**Table B39****West Point Lake—White Tail Ridge, Occupancy Rates,<sup>1</sup> July 1991**

S	M	T	W	T	F	S
	1 50.00	2 48.28	3 50.00	4 50.00	5 39.66	6 22.41
7 3.45	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			
Occupancy Rate for Month 39.7 Occupancy Rate for Weekend During Month 50.8 Occupancy Rate for Weekday During Month 35.2						
<sup>1</sup> Occupancy Rate was calculated by taking the number of nights paid and dividing by (the number of nights multiplied by the 58 campsites).						

# **Appendix C**

## **1991 CRS Data Formulas for Calculations in This Report**

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Data Formulas Used In 1991 CRS Report <sup>1</sup>	
Number of permits	Sum of all permits (including renewals)
Number of renewals	Sum of all renewal permits
Number of groups	(Number of permits) - (Number of renewals)
Recreation days	Sum of [Each permit (the number in party)*(nights paid)]
Mean length of stay	$\frac{\text{Sum of nights paid (including renewals)}}{\text{Number of groups}}$
Mean number in Group	$\frac{\text{Sum of the number in party (no renewals)}}{\text{Number of groups}}$
Percent of prior visitor	$\frac{\text{Number of permits, prior visits = yes (no renewals)}}{\text{Number of groups}} \cdot 100$
Percent of primary destination	$\frac{\text{Number of permits, primary destination = yes (no renewals)}}{\text{Number of groups}} \cdot 100$
Percent Golden Age passport	$\frac{\text{Number of permits, golden age = yes (no renewals)}}{\text{Number of groups}} \cdot 100$
Percent Use: Vehicle/Camping/Recreational equipment	$\frac{\text{Number of parties using equipment (no renewals)}}{\text{Number of groups}} \cdot 100$
Occupancy rate	$\frac{\text{Sum of nights paid (three highest months/renewals)}}{(\text{Number of calendar nights}) \cdot (\text{Total sites})}$
Average fee paid	$\frac{\text{Sum of total fee paid (including renewals)}}{\text{Number of sites}}$
<sup>1</sup> Variable names used in this report are those from ENG form 4457. <sup>2</sup> Represents all vehicle/camping/recreational equipment reported from car 37 through powerboat 49.	

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13. ABSTRACT (Maximum 200 words)  <p>The Campground Receipt Study (CRS) was established to systematically collect information on visitor characteristics at Corps of Engineers fee campgrounds. This system has proved to be an efficient method of collecting trend data.</p> <p>Since the creation of the CRS, many changes have been made in the study procedures, data collection form, and study sites. These changes have been described in previous reports. This report describes the 1991 data, the trends in camping use indicated by the CRS data collected from 1984 to 1991, the yearly and daily occupancy rate, and the revenue per site for each campground.</p> <p>The CRS data represent the best available nationwide sample of descriptive characteristics of visitors to Corps campgrounds. The database can be used by all levels within the Corps to examine current use patterns and, with several years of data, to monitor and evaluate changes in visitor characteristics over time.</p>				
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